<u>Committee Name</u>: Assembly Committee – Rural Affairs and Forestry (AC–RAF)

Appointments

01hr_AC-RAF_Appt_pt00

Committee Hearings

01hr_AC-RAF_CH_pt00

Committee Reports

01hr_AC-RAF_CR_pt00

Clearinghouse Rules

01hr_AC-RAF_CRule_01-30_pt04b

Executive Sessions

01hr_AC-RAF_ES_pt00

Hearing Records

01hr_ab0000

01hr_sb0000

Misc.

01hr_AC-RAF_Misc_pt00

Record of Committee Proceedings

01hr_AC-RAF_RCP_pt00

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- Develop public appreciation for the value of Wisconsin's importance in the economy and overall welfare of the woodlands and their state.

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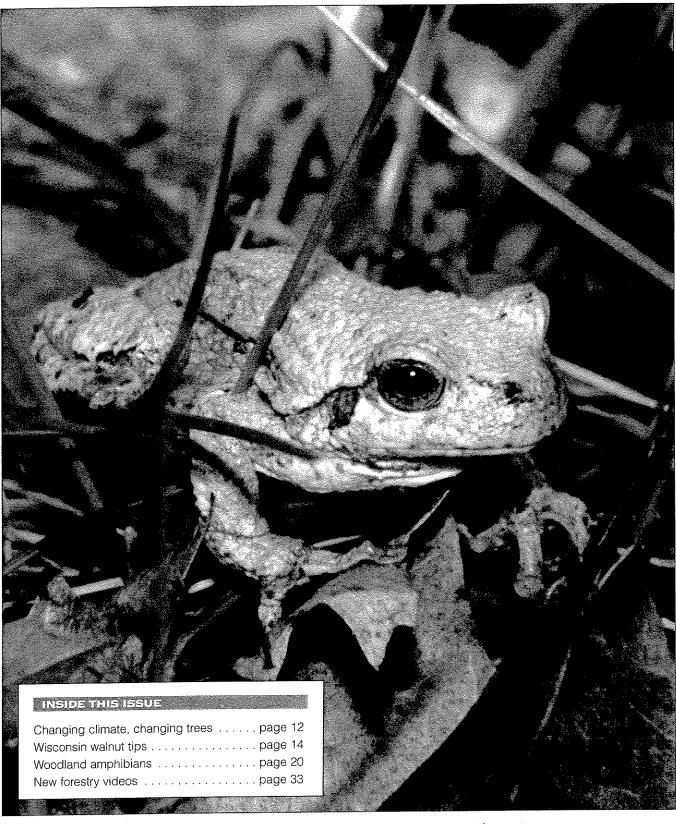
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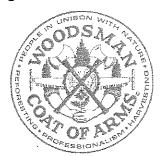
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On the cover: Eastern gray treefrogs can be found in damp woodlands throughout the state. Photo by Craig Brabant.

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Human-induced climate change may cause a wave of transition in Wisconsin's forests. by Scott Green

14 National Walnut Council to meet in Wisconsin

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$16\,$ Observations from 35 years of working with walnuts

Tips on raising walnuts learned from 35 years of experience. by David Ladd

18 Pruning walnuts to grow in Wisconsin

Developing a straight leader is the goal of pruning, and top pruning can put the crown back into proportion with the roots. by Rudy Nigl

20 Wisconsin's woodland amphibians

Small temporary pools of water in your woodland may be "home" to salamanders, toads and frogs. by Rebecca Christoffel

24 Forest tent caterpillars return

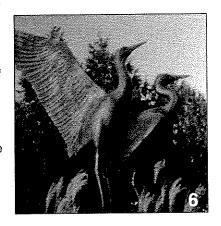
Forest tent caterpillars are expected to return to Northern Wisconsin woodlands this summer. by Kyoko Scanlon

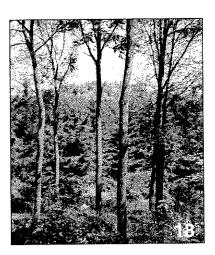
25 Bark beetle infects black cherry

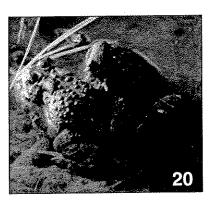
The tiny peach bark beetle attacked black cherry in Columbia County last fall, for the first time. by Dave Hall

33 WWOA Video Library

WWOA members can rent interesting and helpful forestry videos using this order form.







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Woodland Management is published quarterly Send articles or comments to WWOA Publications Committee Chairman. Tim Eisele, 129 South Segoe Road, Madison, WI 53705. Copy and advertising deadlines are: November 15-Spring issue; February 15—Summer issue, May 15—Fall issue; August 15—Winter issue. Prepress and printing by Quick Quality Press, Madison. WWOA is a National Woodland Owners Association affiliate.

President's Message



by Virgil Kopitske

Shirley and I were privileged to be able to attend the first annual meeting of WWOA's newest chapter, Phoenix Falls.

Encompassing four counties in northeast Wisconsin, the chapter's name comes from the Peshtigo fire of 1879 and the many waterfalls in Marinette County. It has been difficult for the chapter to get started because a large percentage of the members are absentee landowners. We were there to lend encouragement and support from the state organization for all the chapter's efforts.

A special thank you goes to Donna Johnston (consultant forester and current chapter president), Roger Perrault (WWOA Board member), Glenn and Evelyn Charlson (1999 Regional Tree Farmers of the Year, and Evelyn is also a member of WWOA's Board) and all the other people involved in organizing the chapter. Jeanette Perrault (Roger's mom) is president-elect, Ed Brandt is secretary and Bob Gottschalk is treasurer. These people plus all the chapter members are to be commended for all they have accomplished since their initial meeting in the spring of 2000.

The winter meeting was scheduled at noon on a Saturday (a good idea when you consider possible winter weather), and attended by 42 people out of 43 who had originally registered. One lady from Elgin, Illinois decided against the winter driving conditions. The selection of facilities was centrally located just outside Crivitz and the food was great.

Curt Wilson, Northeast Wisconsin DNR Regional Forestry Supervisor, Green Bay, presented a talk entitled "Wisconsin Forests: A Snapshot in Time." He provided additional information on aspen regeneration to that contained in the recent report of "Wisconsin Forests at the Millennium."

Aspen and white birch were predominant in the 1930's after the logging of white pine in the late 1800's. Because of rather intense pulpwood harvesting since then, there has been a steady decline in aspen acreage to the present time. However, aspen maturity peaks on approximately a 60-year cycle and aspen is on an upward slope. If you are interested in providing habitat for deer, ruffed grouse, etc., be sure to clearcut. Otherwise natural forest progression over time will take you to red maple and basswood.

Glenn and Evelyn Charlson gave a slide presentation on their 1999 North Central Regional Tree Farmer award and their trip to the National meeting in Montana in September, 2000. I was impressed that one attendee at National commented to Glenn that he was encouraged that small woodland owners could advance that far in recognition of their efforts. This sure provided a lot of incentive to all of us smaller woodland owners.

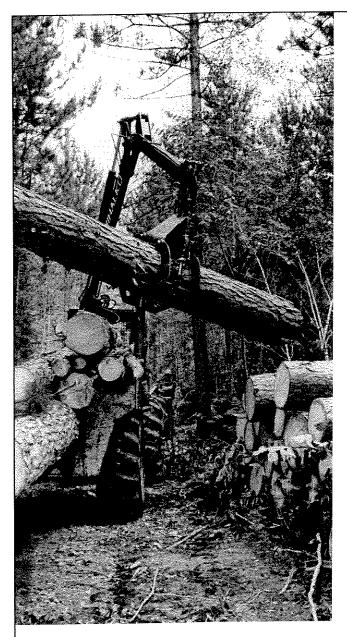
The business meeting consisted of approving the by-laws of the chapter and providing details of planned field day events. I noted a lot of visiting and camaraderie between members attending the meeting. Of special interest to us was meeting Hal Wentzel. Shirley's grandmother was a Wentzel, and as best we could determine, they are probably second or third cousins.

This responsibility of being president of WWOA is pretty nice. You get to meet a lot of nice, and interesting, people. Being at the first annual meeting of a new WWOA chapter was especially great.

Virgil Kopitske is WWOA president and owns woodland in Shawano County. He and his wife Shirley were named Tree Farmers of the Year for Shawano County in 1996.

Visit WWOA's new website: www.wisconsinwoodlands.org

Woodland Management is produced by the WWOA Publications Committee: Nancy Bozek, Jack Densmore, David Downs, Jack Edson, Ann Hockerman, Dave Johnson, Don Krohn, Jerry Lapidakis, Jeff Martin, Mary Meier, Helen Moberg, Russ Moody, Paul Pingrey, Mark Rickenbach, Gene Roark, Clyde Samsel, Ken Witte, and Tim Eisele. The committee's mission is to produce an informative and interesting quarterly magazine to help WWOA members be good woodland stewards.





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Mailbox

Dear WWOA:

I read with my usual interest the Fall issue and have a couple of suggestions. You list on page 11 all the reprints in which Robert Rusch's interpretations can be found. How about considering binding those complete articles into one magazine and selling them as an anthology? There might be real interest among the members to have them all in one place.

Also there is quite a bit of discussion on leasing land for hunting or other purposes in that issue. This last summer I tried to find out what the fair price of leasing my property for various types of hunting and came up with virtually no suggestions. I would think an article listing various fees, either in cash or in kind, for fellow readers would be helpful to many of us. I realize that this can vary from area to area within the state but could certainly serve as a guideline for those of us that would enjoy having hunters.

Thanks so much for a great magazine.

Phillip B. Mayer WWOA member Salem, South Carolina

Dear Mr. Mayer:

Thank you for writing and your interest in the legal column and leasing information. The WWOA Publication's Committee considered publishing Robert Rush's columns, but we have not heard from enough people to make it worth having the columns printed in a booklet. When WWOA has printed separate

indexes, such as the directory for past articles that appeared in the magazine, we have lost money. In addition, such a directory becomes out-of-date as soon as the next issue of *Woodland Management* comes out containing a new legal column.

WWOA ran a hunting lease program but no longer does. However, the WWOA office does have information on hunting leases from back when the program was used. Members can obtain a copy of the information by sending a request to the WWOA office, P.O. Box 285, Stevens Point, WI 54481.

I think it would be great if members would share leasing information through *Woodland Management*. In order to begin collecting information that we'll summarize in a future issue, a form is printed below. Members who have tried hunting leases are requested to complete the form and send it in. To encourage accurate dollar amounts, landowners can remain anonymous.

Other sources for this type of information in your county could include talking to your neighbors, and advertising in local buyer's guide newspapers or local newspapers. You may also want to talk to members of a local hunting or conservation club.

Sincerely, Nancy Bozek Executive Director

Now more than ever

Dear Governor McCallum:

On February 9, 2001, the Wisconsin Woodland Owners Association (WWOA) Board of Directors wrote to you regarding the DNR's Division of Forestry budget and the impact this reduced budget is having on Wisconsin's private forest lands and landowners. In our letter, we also expressed our concern regarding the funding of non-forestry projects from the Forest Mil Tax Fund (Conservation Fund—Forestry Account). We asked you to consider fully funding the Division of Forestry's

proposed budget and the DNR's Initiatives and Mandates regarding private forestry, which were submitted concurrently with the DNR's proposed budget.

Specifically, we requested these funds to deal with the immense backlog that has resulted from years of underfunding the Division of Forestry and diversion of Forestry Account funds to non-forestry projects.

WWOA's Board is writing to you again today because of our continued concerns regarding the proposed budget. At the Governor's Council on Forestry meeting on March 15, the Council reviewed your proposed budget and was disappointed in the number of items that were again underfunded and additional diversions of Forestry Account funds. WWOA cannot understand why the requests of the Division of Forestry and DNR's Initiatives and Mandates private forestry initiatives were not fully funded when the Forestry Account has a surplus.

WWOA has been notified that tomorrow the State Building Commission will be reviewing a proposal to build a Kickapoo Valley Reserve Center. Construction of this facility is listed at \$2,370,000, which the recommendation states should come from the Conservation Fund—Forestry.

Neither the Division of Forestry or the private forestry initiatives within DNR's Initiatives and Mandates proposed budgets mentioned this project. Yet, neither of these budgets was fully funded from the Forestry Account. We are strongly requesting that another source of funds be found for this project. If Forestry Account dollars are used for this project, our more than 2,000 members who are Wisconsin taxpayers and voters will be asking you, "How is it that an additional \$2.3 million dollars of the Forestry Fund will be spent on a new non-forestry building when we, Wisconsin's landowners, are waiting months for necessary DNR services such as initial contact service calls from DNR foresters, stewardship plans, creation and administration of our tax law entries and plans?"

I lease	_ acres of my land in	County for	 at	per acr
(number				
1 7	is in terms of labor or a clusive: □ Yes □ No			
~	ents:			

These services benefit all of Wisconsin's citizens through good forest stewardship, wildlife habitat, recreation, clean air and water. Please reconsider the funding source for this project.

Sincerely, Nancy C. Bozek Executive Director

A letter from the chief

(The following letter of resignation from U.S. Forest Service Chief Michael Dombeck, originally from Wisconsin, is reprinted for your information).

Dear Secretary Veneman:

As you know, this is my final week as Chief of the United States Forest Service. I grew up on the Chequamegon National Forest along forest road 164. As a young boy, I made many trips up and down the West Fork lookout tower that was in full view from our kitchen window. As perhaps the only Chief to have actually grown up on a National Forest, it has been a distinct honor to serve with 33,000 employees dedicated to caring for the land and serving people.

One hundred years ago, one of your predecessors, Secretary James Wilson, directed the Forest Service to manage public resources for "the greatest good of the greatest number in the long run." What defines the "greatest good" has changed significantly since 1904, even since 1997 when I accepted this job. Our

modern industrialized society of 275 million people recognizes today that the values of open space, clean drinking water, and recreation far outstrip more traditional commodity values.

Although the mix and intensity of uses have changed significantly over the years, the multiple use mission of the Forest Service remains as important today as ever. Consider our many multiple use accomplishments of the past year. We:

- provided drinking water to approximately 60 million Americans;
- managed about 35 million acres of wilderness:
- performed watershed improvements on 35,500 acres;
- restored 470,500 acres of wildlife and fish habitat;
- maintained 23,000 developed recreation sites and 4,300 campsites;
- assisted 146,700 woodland owners and 690 rural communities;
- reduced hazardous fuels on 1.4 million acres;
- developed 2,500 research reports and other technical documents;
- maintained 4.5 billion board feet of timber under contract; and
- processed 1,075 energy and bonded nonenergy operations.

Early in my tenure, we faced congressional threats of "custodial funding" due to a decline in the production of commodities. Four years later after an incredibly challenging fire season and an unprecedented debate on the value of clean water and unfragmented landscapes, the overall Forest Service budget increased by 65 percent. National Forest System funding increased by 22 percent. State and Private Forestry increased by 159 percent and Research by 28 percent. I hope that you are able to continue these sorts of investments in conservation and knowledge that pay such high dividends to future generations.

As you begin your tenure as Secretary of Agriculture, I would like to share with you recommendations to help resolve specific longstanding conservation challenges as the Forest Service enters a new century of managing for "the greatest good of the greatest number in the long run."

Roadless area protection

I hope the Administration's intent is not to negotiate a settlement with those opposed to roadless area protection. Doing so would undermine the most extensive multi-year environmental analysis in history; a process that included over 600 public meetings and generated 1.6 million comments—the overwhelming majority of which supported protecting roadless areas. Controversy over roadless areas has persisted for decades. I hope you will withstand political pressure and not reopen this divisive debate.

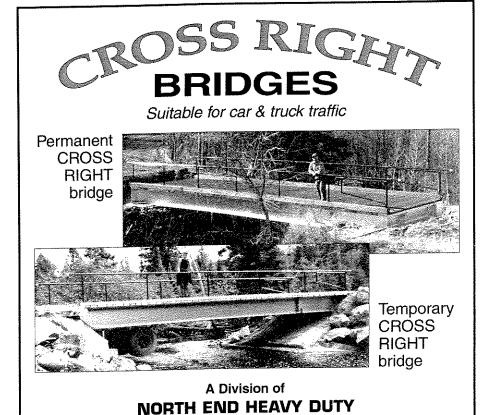
Due to complexity, cost, and controversy more projects fail in roadless areas than anywhere else. Most important, not a single private landowner or corporate interest would continue to build new roads in pristine areas while saddled with a crumbling 386,000 mile road system with an \$8.4 billion road maintenance backlog liability. One quarter of one percent of our nation's timber and a fraction of a fraction of our oil and gas is a small price to pay for the protection of 58.5 million acres of our children's natural resource inheritance. The long-term public interest in conserving these areas should prevail over short-term private interests.

Civil rights and financial management

Much progress has been made in the areas of civil rights and financial management and accountability, but more remains to be done. The Forest Service must remain vigilant in promoting a civil rights agenda that treats employees and customers fairly and with decency and respect.

Financial management and accountability remain a significant vulnerability. Although the traditional culture of the agency does not readily accept outside assistance, I recommend your bringing in the highest quality expertise to bolster Forest Service skills and accelerate the achievement of financial and program accountability goals. With a \$4 billion budget and 35,000 employees, the Forest Service is akin to a Fortune 500 company in size and complexity. It deserves comparable leadership and expertise in the arena of financial management.

Continued on page 31



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Double Ought One annual meeting to feature art and forestry

Oct. 5-7, Wausau

by Marv Meier

The calendar pages are flying by and even the winter snow is but a memory. Before you know it October will be here, and with it the WWOA Annual Meeting in Wausau.

Here are a few highlights to look forward to at the 2001 Annual Meeting. The Spring, 2001 issue of **Woodland Management** provided a brief outline, and now we'll fill in the gaps. To help you plan your arrival time to take the tour you prefer, here are the starting and ending times for the Friday tours.

- Taste of Marathon County-9:30 a.m. to 3:30 p.m.
- Wood Products in Everyday Life-9:45 a.m. to 4:30 p.m.
- Forest Management & Recreation-11a.m. to 4:30 p.m.
- Historical & Art Tour of Wausau-12:30 p.m. to 4 p.m.

Friday evening includes the Lumber-Jack/Jill dinner.

Saturday morning will start as usual with a sociable light breakfast, giving you time to meet and greet old and new friends. You will also be able to peruse the exhibits and silent auction items. The WWOA Business Meeting will be held at

The Historical and Art tour wil visit the unique birds in art exhibit at the renowned Leigh Yawkey Woodsen Art Museum. The Tour also will visit the Marathon County Historical Museum (right) and several grand old homes. Photo by Don Frisque

9 a.m. with legislative and WWOA Foundation updates. Beginning at 11 a.m., Sam Radcliffe, President of George Banzhaf and Co., Milwaukee, will give the keynote address "Timber in the Information Age." This theme will be carried into the afternoon with a series of three presentations focused on the trees part of forest land management and another series oriented toward other forest values. You may choose which of these concurrent sessions you wish to attend.

The forestry series will consist of "Computers and Forestry," by Paul Pingrey, DNR forester; "Understanding Forest Certification," by Mark Rickenbach, UW-Madison, and "Zdanovecs' Woodland Experiences," by Jim and Marlene Zdanovec. Jim and Marlene will be one of the Sunday field day hosts.

The other values set of presentations will began with "Raptors," by Marge Gibson, executive director of the Raptor Education Group. This will be followed by "Wisconsin's Ice Age Trail," by Drew Hanson, DNR/Ice Age Park & Trail Foundation. Concluding the presentations will be a talk about "Wolf Management," by Adrian Wydeven, DNR biologist.

Saturday evening will include the traditional social hour and banquet with award presentations and a performance by The Antigo Cloggers.

Sunday we will head to three WWOA member's woodlands. Buses will leave at 7:30 a.m. for either the Marquardts or the Zdanovecs. At noon everyone will

converge at the Czerwonkas for lunch and the afternoon. Briefly, the Marquardts have a sugar bush and will demonstrate a portable sawmill. The Zdanovecs will show off their log cabin and a variety of forestry activities on land that was a granite pit. The Czerwonkas land is a mix of agricultural use and restored forest on a grazed hillside with old fields. There is also a bog (where John says he finds big bucks) and where we hope to have a specialist available to talk about bog hydrology, soils and vegetation.

It will be beautiful brisk October weather. Which reminds me . . .

I was sitting that brisk October day, with my back against a mossy bark oak Around me squirrels chattered and Blue Jays squawked

Beyond the canopy of painted leaves the sky was a brilliant blue A chill wind swept through the wood brightly colored leaves drifted down

Fronds of the wood fern danced—their last dance

For that night their world would end! They'd saved their "last dance for me."

As I was saying, it will be a beautiful, brisk fall weekend. We can't guarantee you'll get to see the wood fern's "last dance," but we do guarantee many learning opportunities and a lot of fun!

See you in Wausau!

Marv Meier is WWOA's president-elect and member of the 2001 Annual Meeting Committee. He owns woodland in Price County.



Photo by Marv Meier

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Graduate Foresters

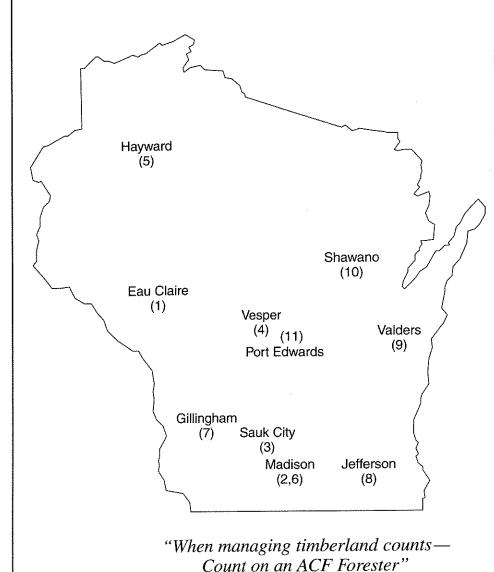
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(8) Bill Seybold ACF N2926 Will Road Jefferson, WI 53549 (920) 563-3908

(9) Peter J. Wagner ACF 7702 Sinawa Road Valders, WI 54245 (920) 758-2328 email: pwagner@lakefield.net

(10) Allan Waelchli ACF W7251 Belle Plaine Avenue Shawano, WI 54166 (715) 526-6020 email: forest2@frontiernet.net

(11) Jeff Niese CM Niese Rural Land Management 40 Market Ave. Port Edwards, WI 54469 (715) 887-3481 email: jeff@niese.com

News and Notes

Mark these dates on your calendar

June 16

FISTA chain saw workshop Seno Center

July 29-August 1

National Walnut Council LaCrosse

October 5-7

WWOA Annual Meeting Mosinee

December 1

Iowa County Landowner Workshop Dodgeville, WI

Check the WWOA website www.wisconsinwoodlands.org or call the WWOA office at (715) 346-4798 for details, plus additional field trips.

Request for proposals

The Wisconsin Carbon Work Group is announcing a request for proposals (RFP) for landowners interested in being involved in a carbon crediting pilot project. The deadline to apply is August 15, 2001 for 2002 pilot projects.

Under the pilot project, landowners will be paid an amount determined by the Carbon Work Group to sequester carbon by planting trees on agricultural land. The amount paid per acre will vary based on the potential amount of carbon sequestered.

The potential will vary by soil type, species, and length of agreement. Initial estimates indicate that payments may vary from \$550 to \$700 per acre for the one-time payment. Out of the payment, the landowner will pay the costs and be responsible for tree planting and maintenance and the development of a forest management plan.

In return for the payment, the landowner will transfer ownership of the carbon credits produced through the tree planting to Wisconsin Electric. This will be in the form of an easement that can range from 50 to 70 years. After the easement expires, landowners are free to utilize the timber as they wish.

Through the easement, the landowner will be able to conduct needed thinning and timber stand improvement as recommended by the management plan. The material generated through the improved practices is owned by the landowner and may be sold. Timber cuts, other than those outlined in the forest management plan,

are not allowed during the term of the easement.

Eligibility requirements:

- Land to be enrolled must currently be in agriculture, such as row crops, hay or pasture
- Land to be enrolled can not be currently enrolled in any state or federal cost share or subsidy program
- Land to be enrolled must be a contiguous unit
- Land to be enrolled must be owned by the applicant
- Preference will be given to land designated by USDA/NRCS as highly erodible
- Preference will be given to land that once planted will complement already established wildlife cover
- Preference will be given to the project that sequesters the most carbon and provides the greatest environmental benefits.

For information, contact Steve Bertjens, chair of the Carbon Work Group, at (608) 348-3235 (steve.bertjens@wi.usda.gov) or Bill Ebert at (715) 343-6214 (ebert@co.portage.wi.us).

Senator questions spending

State Senator Roger Breske (D-Eland) requested that the Joint Audit Committee of the State Legislature undertake a thorough review of expenditures made from the State's Forestry Account. In making the request, Breske expressed his concern that the fund has, in recent years, become a general funding source for programs and initiatives with little or no relationship to the health or future of Wisconsin's forests.

Breske identified several programs as evidence to support his request. Among those identified were: a \$7 million annual subsidy for DNR administration and technology; so-called "interpretive programming" sponsored by the State Historical Society; study hall monitors in urban classrooms; and construction of facilities such as showers, wells, pumps and fireplaces not on state forest lands.

According to Breske, Article VIII, Section 10, of the Wisconsin Constitution establishes a state tax on property for the purpose of acquiring, preserving and developing the forests of the state. The rate of the mill tax, which is set by statute, has not been changed since 1937. For 1999-00, the tax generated \$53.3 million, which is 81 percent of the total revenue

that was credited to the Forestry Account in that fiscal year.

MFL change proposed

The Wisconsin Forest Productivity Council (WFPC) Board of Directors, after considerable debate, approved a motion for WFPC to support, in concept, Senator Kevin Shibilski's proposal to increase the percentage of non-productive acreage allowed in an MFL entry from 20 percent to 30 percent. Shibilski (D-Stevens Point) told the board earlier this year of his proposal to solve the problem that owners of parcels that are more than 20 percent nonproductive due to a wetland situation are unable to enter their property under the MFL. The result is additional forest fragmentation and removal of acreage from future wood production.

School forest harvests

A timber harvest at the oldest school forests in the nation in March helped the school's students better understand forest management, and some of the proceeds from the timber sale will help provide care to sick and injured children.

The timber harvests on the Laona and Wabeno School Forests were the culmination of the joint efforts of many groups, organizations, businesses, and individuals. The proceeds from the harvest benefitted both schools as well as the Log-a-Load for Kids program, part of the Children's Miracle Network.

"School forests are teaching forests first and foremost," said Gene Francisco, state forester and head of the DNR Division of forestry. "They are places where kids, their families and their communities can learn about the importance of forests to our economy and quality of life and how Wisconsin's forests are sustainably managed for the future."

Local loggers and truckers donated their time and services to harvest and transport the wood. Nortax Equipment Company donated the use of the equipment for harvesting the timber.

Both the Laona and Wabeno School Forests were formally dedicated as school forests on April 27, 1928, as the first school forests in the nation. The Laona School Forest has been used as an outdoor classroom for more than 40 years and has been actively managed since its establishment.

Free stream guide

Families who own a forest and want to restore a stream on their property, but don't know how to get started, now have a new resource available to them.

The American Tree Farm System, as part of its Shared Streams cooperative project with Trout Unlimited, has released Stream Steward Restoration Guide: A Small Woodland Owner's Guide to Stream Habitat Restoration. The 45-page guide is written for private landowners interested in improving stream habitat or protecting a watershed, its clean water and wildlife. The easy-to-understand guide provides small woodland owners with practical information on assessing and selecting a site, finding experts to assist with the project, getting funds and permits, and monitoring and maintaining the project's results.

The Stream Steward Guide is free to non-industrial private landowners and can be ordered by calling the American Tree Farm System at (888) 889-4466.

Fall season dates

Here's a quick look at Wisconsin's 2001 hunting seasons. The seasons were expected to receive formal approval at the Natural Resources Board's May 23 meeting in Chippewa Falls.

- · Ruffed Grouse-
 - Sept. 15-Dec. 31 Northern zone Sept. 15-Jan. 31 Western zone Oct. 20-Dec. 8 Eastern zone
- Squirrel-Sept. 15-Jan. 31
- Mourning Dove-Sept. 1-Oct. 30
- · Pheasant-Oct. 20-Dec. 31
- · Woodcock-Sept. 22-Nov. 5 tentatively
- Wild turkey-Oct. 13-Nov. 11
- Crow-Sept. 15-Nov. 15
- Early Goose-Sept. 4-15
- Deer bow-Sept. 15-Nov. 11 gun-Nov. 17-Nov. 25 muzzleloader-Nov. 26-Dec. 2 Zone T (antierless only)gun-Oct. 25-28 and Dec. 6-9 bow-Nov. 12-Nov. 15

(Zone T will be open in 76 Deer Management Units. Check your 2001 hunting regulations pamphlet for final regulations.)

Videos available from WWOA—including Ribbons of Life

"R ibbons of Life, Understanding and managing the River Environment," is a 22-minute video illustrating the importance of land use and land management along rivers and within their watershed that members can get from WWOA. Protecting natural vegetation along rivers and wise land use decisions can ensure healthy rivers today and in the future.

The video is a sequel of sorts to "The Living Shore, Best Management Practices for Shoreland Vegetation." While the primary focus in that earlier production was managing shoreland vegetation (lakeshore property owners), "Ribbons of Life" takes a broader look at a variety of land uses within watersheds and relates the health of our rivers to how we manage the land.

The video was filmed on streams and rivers in Northwestern Wisconsin and North Central Minnesota. The video was a cooperative production between the Minnesota Arrowhead Water Quality Committee, Burnett and Bayfield Counties Land and Water Conservation

Committees, Wisconsin DNR, St. Croix Basin Partners team and UW-Extension.

Copies are available from the University of Minnesota-Extension Distribution Center at (800) 876-8636. Ask for item Number VH-7542. The cost for Wisconsin and Minnesota residents is \$6 each plus \$3.50 shipping and handling, \$10 each for all other locations. Discounts on larger orders are available upon request.

The Burnett County Land and Water Conservation Department holds the copyright and will allow any public agency access at no charge for the master copy.

The video is available for rent from the WWOA office for \$2. Twelve other videos available from the WWOA office are shown on page 33 and 34.





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Healthy Tips



by Dave Downs

Lyme disease update

yme disease normally peaks in May and June each year.

As many of you already know, Lyme disease, (not "Lyme's disease"), is caused by a spirochete called Borrelia burgdorferi. This organism normally lives in deer ticks (Ixodes dammini), which live in the forest, sucking blood from white-footed mice when the tick is in an immature stage. The tick then matures to an adult tick, at which time it seeks blood from a larger host, usually a deer or bear. Man can also serve as a host for a blood meal, and if the tick is infected with Borrelia burgdorferi, the tick may infect the human at the end of its feeding.

After an incubation period of one to two weeks, the bite area reveals an expanding red lesion resembling a bullseye, along with symptoms of low-grade fever, lassitude, and generalized aching, resembling the "flu." If untreated at this stage, it may progress into joint and central nervous symptoms. If caught early, antibiotic treatment is curative. An attack of Lyme disease does not confer any immunity to a future infection.

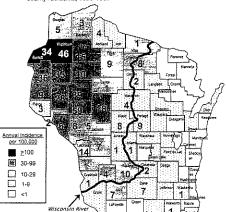
Immunity may be conferred by a series of injections of Lyme vaccine, consisting of two injections a month apart, followed by a booster injection a year later. The vaccine is not very effective until after the booster shot, and is not recommended for persons over the age of 70 years.

In medicine, prevention is almost always easier, safer, less expensive, and more effective than treatment, and Lyme disease is no exception. To prevent you from contracting Lyme disease, I recommend the following steps:

- 1. Know what the disease is and what it is not. It is not a death sentence. It just needs to be treated.
- 2. Know that ticks carrying the germ do not jump from trees or bushes. They lie in wait from low-lying vegetation

LYME DISEASE RISK IN WISCONSIN

- Numbers in county indicate cases known to have been acquired within that county, 1993-1997*
 County shading represents average annual
- County shading represents average annual incidence (cases per 100,000 population) among county residents, 1993-1997



County of exposure only determined for patients with erythema migrans and no travel outside of county of residence for 30 days prior to onset. A county of acquisition could not be determined for 1,533 of the 2,045 cases.

This figure combines county incidence rates with areas of most likely disease acquisition to give an overall picture of the risk of Lyme disease in various parts of Wisconsin.

In general, the Wisconsin River may be viewed as the current dividing line between areas of high! moderate risk and areas of low risk in the state. Those counties west of the River and those through which the River flows can be considered areas in which there is a reasonable risk of contracting Lyme disease.

The risk for any Individual depends upon the geographic area in which that person lives, works, and recreates as well as the extent of exposure to grassy or wooded habitat where ticks can be found.

Wisconsin Department of Health & Family Services

(under 18 inches high) for a host, and are brushed off on to your skin or clothing as you pass by. They have hooks on their legs that are designed to snag on the fur of animals, and if you go by their spot, you are the animal that they get.

- 3. If you apply a good insect repellent to your skin and Permanone to your outer clothing, your protection is virtually 100 percent.
- 4. Do a tick check after every outing in the woods. If you are not vigilant in applying repellents, keep in mind the young girl in New England who got Lyme disease twice. The first time, her mother

found a tick embedded in her ear canal, and the second time, a tick was discovered in her navel.

Mow trails in the fall, and make sure to mow back away from where you ordinarily walk. Ticks don't like short vegetation.

I hope this will give you a new appreciation and respect for this disease. It's not the end of the world, but it's not something to be taken lightly, either.

Dave Downs is a retired physician. He owns woodland in lowa County and serves on the WWOA Publications Committee.



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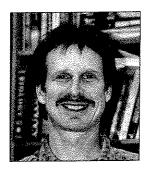
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Climate Change: What does it mean for Wisconsin's forests?



by Scott Green

Sometime around 11,000 years ago, a great global warming occurred following the retreat of the last glacial event. A front of warming climate pushed northward, and with it came a massive migration of plants and animals that reshaped the landscape of North America.

Gradually, the modern forests of Wisconsin replaced the arctic tundra and boreal forests that likely covered the landscape here during the glacial period.

In this century, Wisconsin's forests may endure another wave of transition due, in part, to human-induced climate change. In a nutshell, the earth's climate is thought to be warming in response to the build up of heat-trapping gases, like carbon dioxide (CO₂) and methane, in the atmosphere. The gases are largely associated with the combustion of fossil fuels. A growing consensus within the scientific community points to the likelihood of a shift in Earth's "normal" weather patterns; yet there remains tremendous controversy over the details.

Big problem or much ado about nothing?

The Intergovernmental Panel on Climate Change, a coalition of the world's leading climate scientists, contends that the Earth has warmed about 1° Farenheit over the last century (and about 9° F since the end of the glacial age). They estimate that average global temperatures will increase another 2.7 to 10° F in the next 100 years due to the greenhouse effect.

Taken at face value, Northern Wisconsin might feel much more like present-day Southern Wisconsin. But, the reality could be more extreme. Temperature increases are expected to be highly variable

regionally and more severe at higher latitudes. Parts of Europe, for instance, might actually become colder due to the disruption of ocean currents, while other areas could see temperatures rise much greater than predicted global increases.

In addition, climate change may not evolve as the gradual uptick in annual temperatures that many expect. Instead, "normal" weather patterns could be drastically altered over a relatively short time period by global processes that may be very sensitive to small temperature fluctuations. Shifts in the jet stream patterns or ocean currents, for example, would directly alter a variety of weather characteristics beyond just temperature, such as precipitation, cloudiness, and storm frequency and severity.

Ultimately, the interaction of such weather traits would determine the actual impact of climate change on local conditions. The impact of warmer temperatures on forest development, for instance, would depend upon whether precipitation increased, decreased or remained the same.

But, does climate change pose a real threat to forest ecosystems? After all, forests exist in a state of nearly constant flux, continuously adjusting to changes being imposed upon them by natural and human-induced processes (drought, fire, flooding, wind, cold, browsing, insect defoliation, disease, management and harvesting impacts—to name just a few). So, won't our forests just adapt? In part, it is our uncertainty about the fallout from climate change that evokes so much concern. But, we can begin to identify some very real complications that could hinder the ability of forests to cope with climate change.

New forests, new problems

Some of the current models are predicting drastic shifts in the distribution of tree species over the next century. The U.S. Forest Service applied a landscape modeling approach to predict changes in the distribution of all the major tree species in the Eastern United States under the assumption of moderate warming. And, their findings indicate that many of Wisconsin's major tree species (such as aspen, sugar maple, yellow birch, balsam

fir, red pine, white cedar, and beech) may "migrate" out of the state due to changes in their Southern ranges. Equally disturbing, their model predicts the migration of "exotic" tree species into Wisconsin from Southern regions. Willow oak, loblolly pine, and shortleaf pine, for example, are expected to find their way into Wisconsin.

Admittedly, such models possess a great deal of inherent uncertainty, so it's probably a bit premature to draw up plans to manage for loblolly pine in the Central sands region in Wisconsin. But, if such "exotic" species did take up residence here, the ecological balance in Wisconsin's forests could change in ways that we are just beginning to grasp.

Interactions between trees, wildlife, insects and pathogens

Various ecological processes that play a secondary role in determining landscape patterns in a given region may suddenly assume much greater importance under the kinds of changes suggested above. Insect outbreaks, for example, may be highly sensitive to climate change. A recent study found that spruce budworm, jack pine budworm and forest tent caterpillar outbreaks increased sharply following warm winters in boreal forests. If coupled with a general warming trend, such events could produce an ecological domino effect. Intensive or persistent insect defoliation could lead to large-scale mortality and the massive build up of fuel wood.

Under this scenario, the frequency and scale of forest fires could increase dramatically, which would have major implications on the dominant species and management practices of these forests. Such ecological interactions might be further complicated by the immigration of new tree species into Wisconsin with their associated insect and pathogen pests—some of which could be highly virulent to native tree species.

Another example strikes a more familiar ring. Populations of key browsers (such as deer and rabbits) could explode under persistently warm winters. As we know all too well, these browsers can markedly alter the compositions and progressions of forests. And some species could be particularly vulnerable.

Plant-climate interactions

Perhaps the biggest mystery surrounds the interactions between plants and the actual manifestations of a changing climate. Based on observations of plant flowering and the return of migratory birds, Wisconsin springs arrive about a week earlier (and fall a week later), on average, than they did 60 years ago. Growing seasons will continue to expand in Wisconsin if climate warms, and this will likely produce sharp increases in annual growth. However, plant responses to this extra growing window would vary based on a species' capacity to adjust to new conditions.

Evergreen trees maintain a living canopy all year, and they may be particularly well suited to utilize an expanding growing period. In addition, Southern "exotics" may be better suited to utilize longer growing seasons. Northern species may be more genetically "conservative" due to their adaptation to harsher climates, and they might not be flexible enough to fully acclimate to changing conditions. As a result, competitive interactions could shift between evergreen and deciduous species, and Southern species migrating into Wisconsin might have an inherent advantage over Northern species.

A second plant-climate interaction stems directly from increasing CO₂ levels. Plants "consume" CO₂ to grow. More CO₂ in the atmosphere could increase plant productivity. However, a recent study in Northern Wisconsin suggests that greater amounts of CO₂ may decrease nutrient uptake (and growth) in some trees such as aspen. As a result, some species may benefit from greater CO₂ availability, while others may not. Once again, this kind of interaction might alter ecological relations between different forest species.

Forest management in the 21st century

In addition to possible ecological complications, climate change could destabilize forest management economics. Longer growing seasons and the "fertilization" effect of enriched atmospheric CO₂ could increase overall forest production. However, certain industry-targeted species (such as aspen and red pine) might undergo decreases in growth rates as optimal ranges shift northward. And the costs of managing quality trees could increase due to the ecological fall-out that might accompany climate change.

With all of the uncertainty surrounding climate change, one thing is sure—our

Publications note climate changes

The pamphlet "Warming Trends: What global climate change could mean for Wisconsin" produced by the Wisconsin Department of Natural Resources explains climate change and details impacts.

Burning fossil fuels releases carbon dioxide into the air. Carbon dioxide and other gases collect in the atmosphere, where they act like the glass in a greenhouse, trapping heat and radiating it back to Earth.

According to DNR Director of Air Management, Lloyd Eagan, if scientists' predictions hold true for how global warming could potentially affect Wisconsin in the next 50 to 100 years, farms in Southern Wisconsin might begin to resemble those in present-day Kansas. Typical Northern forests could completely disappear from Wisconsin.

Researchers predict that mixed Northern hardwood and oak forests would be transformed to oak savannas and grasslands within 30 to 60 years. The radical changes in forest makeup could have far-reaching effects on the forestry industry, some types of hunting—and the very character of the state's landscape.

For a copy of the DNR publication, and suggestions of what people can do, contact the DNR Bureau of Air Management, (608) 267-0573 (urbana@dnr.state.wi.us).

A Knight Ridder Newspaper article in November, 2000 reported that as a result of warmer annual mean temperatures Alaska's permafrost is melting. The result is that the warmer temperatures cause damage to buildings and buckling of roads as the permafrost melts.

An article in the Wisconsin State Journal in September, 2000 reported that John Magnuson, UW-Madison limnologist, said that records back to the 1850s show that Lake Mendota (Dane County) freezes six days later than 100 years ago and thaws more than 7 days sooner.

A series titled "A change in the seasons" in the Milwaukee Journal Sentinel in May, 2000, reported that according to the National Research Council, the Earth has warmed up between 0.7 and 1.7 degrees Fahrenheit in the last century. The article indicated that it could be possible that Northern hardwoods, such as maple, aspen, yellow birch, jack, red and white pine, could retreat to the far Northern part of the state.

The article quoted then DNR Secretary George Meyer that "global warming is going to have a dramatic impact on the quality of our lives and the lives of our children. It's going to happen. We need to take measures to lessen the impact."

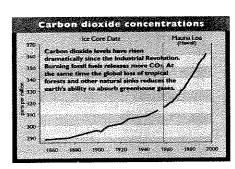


Charts designed by Nancy Warnecke, Moonlit INK

understanding of ecological interactions will improve with time, and predictions about climate change will shift in coming years. The concept of a "native ecosystem" may become increasingly blurred as Wisconsin's landscape responds to evolving conditions that may occur. Flexible management strategies will allow landowners to respond to both changes in climate and changes in our understanding

of climate's influence on forest ecosystems. In the 21st century, forest managers will need to keep an eye on the past, the present and the future.

Scott Green is a post-doctoral researcher in the Department of Forest Ecology and Management at the University of Wisconsin-Madison. His research has focused on the ecological response of trees to their environments.



National Walnut Council to meet in Wisconsin



by Stanley Peskar

WOA members are invited to the 2001 National Walnut Council annual meeting to be held in La Crosse, July 29 to August 1. WWOA members who grow walnut, or are considering it, shouldn't miss this meeting.

About 30 years ago furniture makers and other users of black walnut became alarmed that the harvest of quality logs was far exceeding replacement rates. The National Walnut Council was organized in 1970, with its primary financial resources coming from the wood using industries. Expertise and contacts were provided by professional foresters.

Over the decades, the anxiety of the wood using industry has declined because tropical hardwoods were so cheaply available and most folks didn't care if their TV came in a beautiful wood cabinet. So the council developed into an organization of landowners, professional foresters and university researchers with minor industry support. There are state chapters in Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Missouri, Nebraska, Ohio, Oregon, and Wisconsin. Annual dues are \$25, plus \$5 for Wisconsin chapter dues.

The Wisconsin chapter has 107 members, many of whom are also WWOA members. The chapter typically has a fall meeting and field day, a winter meeting and work days that could involve a timber harvest, nut gathering for tree improvement or other activities to give hands-on experience.

The evolution of the council from an industry to a landowner emphasis has not meant a decline in its quality or of the programs it provides. The three-day annual meetings are jam-packed with informative and inspirational activities as well as the opportunity for comradeship with some of the most interesting people from across the U.S. and the world. One of the speakers this July will travel from Germany to share

his hybrid walnut experience. The "show and tell" sessions where members share their triumphs and failures, generally illustrated by slides, are always informative and entertaining. This year they will include hard-to-find decade long experience with high density mixed hardwood, direct seeding and the growth potential in an 80-year-old plantation.

At the Severeid Rockland Tree Farm, you will see the results of direct seeding, interplanting with chestnut and other hardwoods or conifers, close spacing, top pruning and deer discouragement practices. In addition, you can see a

reestablished prairie and how much agreement there is among three professional foresters about which trees to thin from a beautiful 12-year-old mixed hardwoodwalnut plantation.

The Severeid West Salem Tree Farm offers a 24-year-old walnut monoculture with varying soils, with soil pits to help analyze reasons for differing vigor. Marking the 24-year-old stand for thinning may be even more educational and controversial. We will also see timber stand improvement in a natural walnut stand, walnut grafting and practical equipment for tree farmers.

The walnut tree

The black walnut is a native species in most of Southern Wisconsin. It grows to well over 100 feet in height, six feet in diameter and 200 years of age on good sites with rich, deep, well drained soils. It is relatively fast growing, with fewer insect and disease enemies than many other hardwood species commonly grown for timber in Wisconsin.

Black walnut wood is strong, relatively light weight, warp free and durable. These characteristics and its dark color have, in the 1950s and 1960s, made its lumber so valuable that veneer quality trees were commonly felled and stolen from accessible sites where the owner was absent or otherwise unable to protect them. In recent years, the fashion has shifted to black cherry and white woods like hard maple, but the value of good quality walnut has been rebounding and now equals or exceeds that of other hardwoods that can be grown in Wisconsin.

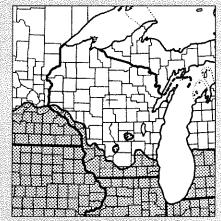
With the establishment of the Conservation Reserve Program, many former farm fields in Wisconsin have been planted to trees. Walnuts have been a component of many such plantings, normally mixed with other hardwoods and softwoods to provide diversity and self-pruning.

It is clear that the black walnut grows quite far north in Wisconsin. This extensive feasible range predated the measurable global warming we are now experiencing. A giant walnut stood on the lawn of the Old Rittenhouse Inn in Bayfield on Lake Superior until a few years ago. That tree has since been replaced by a parking lot. Although the lake effect modifies the climate at Bayfield, excellent specimens of walnut can be found well north of what used to be considered

its natural range. Century-old trees and extensive forests of walnut exist near River Falls, at about 45 degrees north latitude, and for 50 miles north. Frost cracking seems no more common in these Northern walnuts than in those from Southern parts of Wisconsin.

It may be that repeated frosts well into the growing season, after second leaf flush are the limiting factor on Northern grown walnuts. Killing frosts in May in low areas after first leaf flush are common over most of Western and Southwestern Wisconsin. Yet almost all but the weakest defoliated walnuts flush again and go on to produce good growth after a single killing frost in any year.

-Stanley Peskar



Native range of walnuts (in gray) from SILVICS of Forest Trees of the United States by USDA Forest Service.

The meeting will be held in La Crosse, an old Mississippi River town with many fine old homes left from the era of the lumber barons. The old houses will be some of the attractions on a spouses tour. We will view and hear about the river and the coulee region from high on a ridge with Wisconsin archeologist and coulee region specialist Ernie Boszhart. Later we will have a lower view of the Mississippi on a boat trip.

The annual meeting only comes to Wisconsin every 10 to 15 years. This meeting offers an introduction to the Walnut Council without the need to travel across the country. Next year the annual meeting will be held in Maryland.

Severeid hosts meeting

Dr. Larry Severeid is the host and chairman of the 2001 Walnut Council Annual Meeting in LaCrosse, starting July 29 and ending August 1. Last year, Dr. Severeid retired from his ear-nose-throat specialty practice to spend full time on his two tree farms, the 2001 annual meeting and other forestry activities.

Dr. Severeid's interest in black walnuts and plantation forestry began with a 1977 planting on his farm at West Salem. The emphasis back then was on planting conifers. He observes that black walnut was the only deciduous species you could order from the DNR and that now things have changed with deciduous seedlings of many species constituting at least 60 percent of DNR tree orders.

Besides serving as president and a board member on the National Walnut Council, Dr. Severeid is also a WWOA life member and active member of the Bad Axe Chapter.

Definitions

Self pruning—Spacing trees close enough to each other so that the lower limbs are shaded out and drop off.

Leaf flush—the rapid leafing out of a tree, or other deciduous plant, after a dormant period or other defoliation.

Soil pit—a hole in the ground dug for the purpose of showing the depth and other characteristics of the different soil horizons, with a view to predicting suitability of the site for various tree species or other crops.

Frost cracking—a defect in tree trunks or logs generally initiated by a wound and continued and expanded by action of fungi and other organisms together with repeated freezing and thawing.

Dr. Severeid approaches walnut culture the way he would approach a novel medical problem. He consults the literature, experts and landowners with experience. At field days and demonstrations he can often be found off from the group with his camera and notebook after his insightful questions have been answered. Looking for the best information on plantation forestry he has conferred with foresters and studied hardwood culture in Germany, France, England, Hungary and Romania. Germany has many centuries of documented plantation forestry experience, with complicated species mixes and succession plans and rotations up to 300 years.

The Germans and French in particular have been producing seedlings that are a hybrid of black walnut and Persian walnut. The hybrid seems to grow significantly faster and the wood is lighter in color, with excellent marketability. The hybrid walnut was the focus of one of Severeid's European trips.

Dr. Severeid's insistence on making meaningful comparisons was exemplified last fall when we each set out some walnut seed in our respective seedling beds. This seed had spent more than a month in shipping and was observably dehydrated. He was not content with his single experiment of soaking 100 nuts in water for 24 hours before planting, while planting an equal number of unsoaked nuts in a separate marked bed. He convinced me to duplicate the experiment at my River Falls farm. We will count the resulting seedlings this year.

There are many areas of disagreement, about walnut and other hardwood silviculture. Dr. Severeid has different sites on his two tree farms representing the prevalent and opposing points of views on several of these theories, which people attending the conference can compare this summer.

To attend the Walnut Council meeting, write: Walnut Council, 4545 Northwestern Drive - Suite C, Zionsville, IN 46077, or call (317) 802-0332. ♣

Stanley Peskar is the president of the Wisconsin Chapter of the National Walnut Council. He owns woodland in St. Croix and Bayfield counties, is a WWOA member and serves as vice president of the West Central chapter of

EDITOR'S NOTE: Landowners may want to refer to Forestry Facts #51, 52, 57, 58 and 90 from the UW-Extension for additional information on walnuts in Wisconsin.

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Observations from 35 years of working with walnuts



by David Ladd

y sons and I have worked intensively with black walnut trees on our tree farms since 1965. The following provides a summary of black walnut silviculture gained from more than 30 years of personal experience with planting, pruning, fertilizing and caring for walnuts.

In general, knowledge, common sense, experience and hard work are the main ingredients in raising a quality walnut tree.

- 1. Use a common sense approach.
- 2. Natural walnuts—Take care of what was planted by Mother Nature first. This includes pruning where necessary and timber stand improvement. Give the quality trees extra attention and the so-called lumber grade trees less attention. Once a poor quality tree always a poor quality tree. You cannot afford to spend much time on a 50-cent per board foot tree, but you can afford a lot of care and effort on a potential \$6 to \$8 per board foot tree.
- 3. Soil site—Most important, I look at growing walnut trees like growing field corn: both require well drained soil. There are a lot of small narrow valleys that have good soil site qualities in the hilly country of southwestern Wisconsin. Some are very narrow drainage areas that may only be 100 to 200 feet wide.
- 4. Seed source—Just as important as soil site is genetics. If state nurseries do not have a seed source of superior trees, don't use them. Pick up the nuts from your area of superior trees and plant them as seeds or establish a small nursery. If not available locally, you can purchase your seeds from a source that can certify that they are from superior trees. That particular tree is going to occupy that space of land for a long period of time, which makes it most important to use a good seed source.

- 5. Pruning—Most people have a tendency to over-prune, because I know that I do. It is important to create a leader early in life and to maintain a good leader until you reach the desired log length. Side pruning should only be done as needed. The leaf surface is the factory of the tree that creates growth, and I only prune those side limbs that are up to 1 1/2-inches to 2-inches in diameter early in life. You should never remove more than one-third of the live crown. Check with your local forester or arborist so that you are properly pruning the branch collar.
- 6. Plantations—These are labor intensive, and if possible, I believe in a nurse tree like Carolina hybrid pine (which grows faster than white pine) or a hybrid poplar. These are available from nurseries and planted between rows to create a faster growing "woods-like"

- atmosphere. It will save a lot of labor in pruning and produce a better tree.
- 7. Herbicides—Herbicides are very important in the early years, especially for grass control.
- 8. Don't over plant—The easy part is putting the tree in the ground. If you want quality trees, they will require a lot of care for many years.
- 9. Marketing the timber—The price you receive for logs or trees varies greatly. I suggest a minimum of three qualified bids. Also, keep in mind that the market for black walnut has its ups-and-downs.

David Ladd is a charter WWOA member and member of its first board of directors. He owns woodland in lowa County, is the founder and owner of Walnut Hollow woodcraft business in Dodgeville, and chairs the big game study committee of the Conservation Congress.



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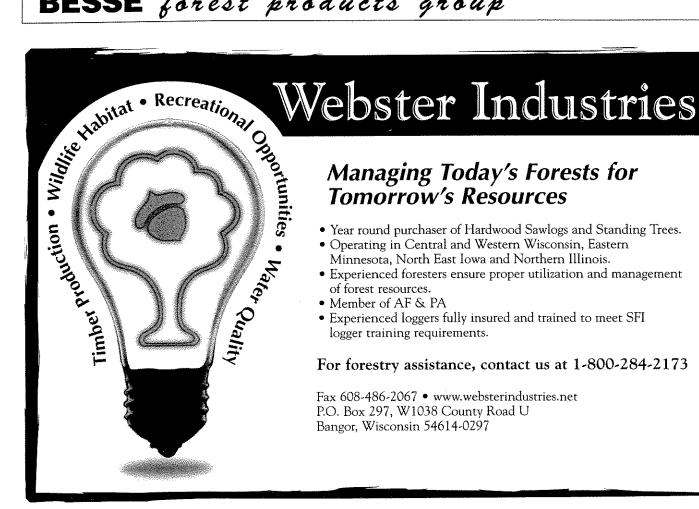
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Pruning walnuts to grow in Wisconsin

By Rudy Nigl

Looking back around 30 years ago, foresters in Southwestern Wisconsin first began planting hardwood trees, mainly walnut. The prices paid for walnut and some years later red oak, were probably the biggest reason to get into the hardwood planting program.

We pretty much started from scratch. Little or no success resulted from early plantings. Trial and error was the order of the day. But, today, with the knowledge gained through the years, there are few reasons quality hardwood trees can't be grown.

Much has been written about site quality, herbicides, thinning, etc. Corrective pruning of hardwood trees is another story. What is said goes in one ear and comes out the other with many growers. After seeing so many pine plantations pruned, people assume that that's the way you prune all trees.

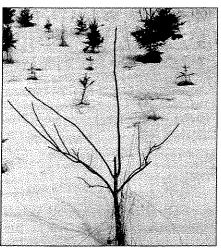
I can remember one field day when I was demonstrating top pruning and one woman just yelled out, "you're nothing but a beheader." I bumped into the lady again at the Annual Meeting in Nebraska a few years ago and she told me they were doing some top pruning on their problem trees, but it took years. You can't wait that long. You have to work with these trees the year after they are planted.

Looking at the total tree and then pruning to maintain a straight tree is hard for many people to see. Developing that straight leader is the number one objective in pruning. Through pictures and narratives, hopefully I can show steps to achieve that end.

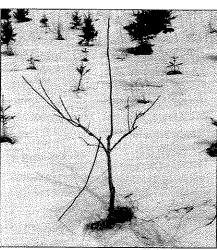
Growers of hardwood trees, especially walnut, know all too well how insects, animals, frost, wind, etc. affect walnut. Even with the best of sites and herbicide treatments these problems can crop up.

Let's start with a seedling about to be planted. I start by top pruning the seedling back to around 10 inches above the root collar. The DNR Wilson State Nursery grows walnut seedlings two feet and taller. Cutting the seedling back to this height makes it much easier to machine plant. The seedling can now pass under the packing wheel axle, allowing the tree to be planted straight.

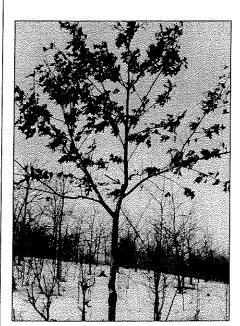
If you're hand planting you still want to do the same thing. The reason is



1. A three-year-old walnut tree that had an umbrella top, was not growing into anything but a bush. The tree was top pruned back to where the stem was straight. I then cut off all side branches below the cut to about six inches on a tree this size. The tree dies back a few inches normally from the cut. Then in most cases a latent bud will form a new leader.



2. After pruning, this photo now shows a straight four and one half foot tree.



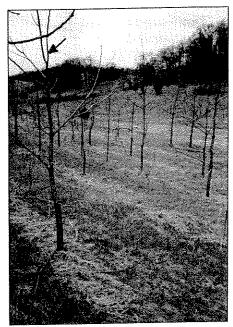
3. This red oak was top pruned about four years ago. Again you have to have a straight leader to grow a straight tree. I want to emphasize that you prune a hardwood tree from the top down.



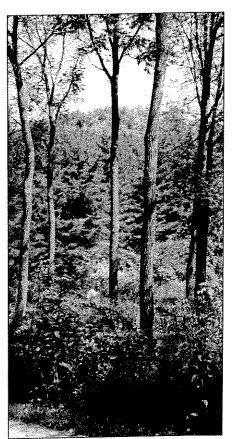
4. Starting at the top you can see the fork. The branch on the right was removed. No other branches on this particular tree were removed.

because the seedlings are shocked when lifted from the nursery and it causes some root damage. You may even want to root prune the long roots for ease of planting. This root damage causes an imbalance in the root/crown ratio. With top pruning you are putting the crown back into proportion with the roots.

Rudy Nigl of Gillingham, has 3 and 1/2 years of experience with the USFS, 25 years with the Wisconsin DNR, and 10 years as a private consulting forester. He owns 350 acres of woodland in Richland County, of which 80 acres are planted in walnut and red oak. He is past president of the Wisconsin Walnut Council, member of the Association of Consulting Foresters, and a member of WWOA.



5. This is a bad fork. This fork should have been removed long before the branches below it were removed. Again looking at the top making sure your leader is dominant, with no other branches interfering with it, you move down the tree and remove any poor forks. Don't worry about that first veneer log; those branches will come off in time. As time passes you will see the lower branches losing their growth and dying. Prune them at that time.



7. All this tree needs is time to grow—you have done your job.



6. Most growers tend to over prune. You want a straight tree first and foremost; the veneer logs will come. When all is said and done you should be able to look at your trees and the majority should be straight high quality trees that will make you proud. Photos by Rudy Nigl



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Wisconsin's woodland amphibians



by Rebecca Christoffel

Have you ever wondered about the value of those small temporary or semipermanent pools of water in your woodland? These fishless wetlands are important places for many plants and animals that live in Wisconsin, including amphibians.

Wisconsin is home to 19 species of amphibians, animals that have two distinct life stages. This group includes salamanders and anurans (frogs and toads). Following emergence from winter hibernation, many of these animals use temporary or semipermanent woodland pools for breeding and egg-laying. Afterward, adults move out into the surrounding landscape to feed on insects.

Young amphibians hatch from the jelly-encased eggs, and spend the first part of their lives as gill-breathing larvae within the water. Once they have matured and metamorphosed into lung and/or skin respiring terrestrial adults, they too leave the ponds. Sometimes it is a race against time for the larvae to reach metamorphosis before the pool dries up. During drought years all larvae may perish.

About 375 species of salamanders (tailed amphibians) exist globally. Salamanders have long bodies with very short limbs and a long tail, and they swim with snake-like movements. They are small (most less than 10-inches long), silent, nocturnal, and very secretive except during breeding season. Salamanders are generally found in temperate regions, and the "hotspot" for salamander diversity is in the Appalachian region of the Eastern United States.

Wisconsin has seven salamander species, many of which use temporary or semipermanent woodland pools, including the blue-spotted salamander, spotted salamander, central newt, tiger salamander and four-toed salamander. All but the four-toed salamander and central newt

breed only in the spring, and lay their eggs afterward. The four-toed salamander and central newt breed in the fall, and egg-laying commences the following spring. Salamanders perform a nuptial dance before mating. The dance stimulates the female to follow the male, who then deposits a spermatophore (sperm packet) on the pond bottom or ground. The female picks up the spermatophore using muscles around her cloaca (opening used for reproduction and excretion), thereby ensuring internal fertilization of the eggs. Salamanders produce far fewer eggs than frogs, but their eggs are more likely to be fertilized.

The eggs hatch in three to eight weeks. The emergent larvae are carnivorous, feeding on fairy shrimp, insect larvae and smaller amphibian larvae found in the pool. Upon metamorphosis, the young will leave the pool and forage in the surrounding upland habitat until cold weather signals the start of hibernation.

Frogs are known as "tailless" amphibians. About 4,000 species of frogs can be found globally. They are found worldwide except at the poles and in some deserts. The general body form of the frog varies with the habitat it lives in. Animals that have short bodies, long powerful legs, wet skin and are aquatic in nature are generally called frogs. Those with short bodies, warty skin, short limbs, and that are terrestrial in nature are generally called toads. (However, toads are still "frogs," just a subset of the group.)

Finally, animals having flattened, elongated toes with adhesive toe pads and loose, flexible belly skin are arboreal (tree dwelling) in nature and are generally called treefrogs. Frogs have a well-developed vocal system consisting of larynx and vocal sacs, which males use during the breeding season.

Several of Wisconsin's 12 frog species use temporary or semipermanent woodland pools for breeding, including wood frogs, spring peepers, American toads and Eastern gray treefrogs. Upon emergence from hibernation, males travel to the breeding pools followed shortly thereafter by the females. Males vie for the best calling spots around the pool, and delight us with their choruses each spring.

Some, such as the wood frog, move in and out of the breeding pool within a two-week period, while others such as the spring peeper may congregate around the breeding pool for a month or more. Males attract females with their mating calls. Females will then select a male to breed with, and lead him to an area of the pool where her eggs will be laid. The male grasps the female behind her front limbs for mating, a position known as amplexus. By rubbing under her forearms, the male stimulates egg-laying in the female. She releases her eggs into the pool, and the male releases his sperm afterward. Frogs lay many more eggs than salamanders, in part to assure that some will be fertilized (external fertilization is much less efficient than internal fertilization).

Tadpoles hatch out of the fertilized eggs in one to three weeks. They are herbivores, feeding on microscopic plant material. Most of their time in the pool is spent feeding and evading predaceous insect and salamander larvae. Upon metamorphosis, the young frogs will leave the pool and spend the rest of the summer foraging on insects in the surrounding woodland.

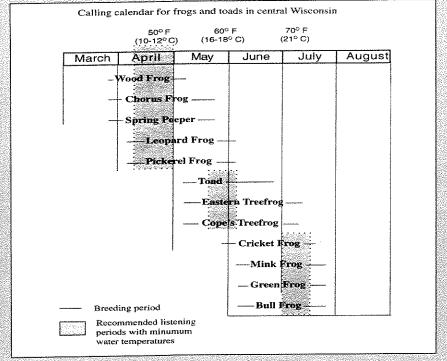
Woodland salamanders

Blue-spotted salamander—(3.5 to 5.5 inches). Found statewide, the blue-spotted salamander is black or grayish black with numerous pale blue flecks on its sides, legs, belly and tail. The belly may be lighter than the back. Moist deciduous hardwood forests are the preferred habitat but these animals can be found in rather dry, disturbed woodlands as well. Blue-spotted salamanders need ponds that hold water well into the summer to reproduce successfully. Adults can often be found beneath logs and other forest debris.

Spotted salamander—(5 to 9.75 inches). Found in the Northern half of Wisconsin. these salamanders are also found extending 80 percent of the distance down the state in the East. The spotted salamander is black or dark gray with two irregular rows of round yellow spots running from head to tail. The spots on its head may be orange. The belly is unspotted and varies from gray to purplish brown. Preferred habitat for spotted salamanders is moist woodland. Most of the time, spotted salamanders are found underground and are rarely seen. Spotted salamanders are philopatric (they return to the same breeding ponds year after year).

Central newt—(2.5 to 6.5 inches). Found statewide, the central newt is olive to brownish green above and yellow on its throat and belly with small black dots scattered over much of the body. In its terrestrial

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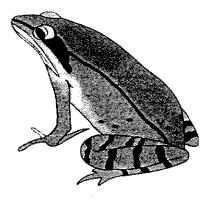
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phase, the red eft, is red, orange or rusty brown above and yellowish below. Red efts have dry, rough skin. Newts can be found in many aquatic habitats, including permanent ponds and lakes in woodland as well as open areas and marshes, and in semipermanent waters in riverbottom forests. Courting and mating occurs in the fall and winter, as well as the spring.

Four-toed salamander—(2 to 4 inches). Found in the Northern half of Wisconsin, with scattered populations throughout the Southern half, the four-toed salamander is a tiny reddish-brown salamander with a long tail. The belly is white with black spots, and each hind foot has four toes rather than five. These salamanders are found in moist woodlands with boggy ponds, tamarack and sphagnum bogs, and conifer swamps. Females lay their eggs in the spring in a cavity under or within a clump of moss or rotting wood that overhangs the water. The female attends to her eggs for at least a part of the incubation period. The larvae fall into the water upon hatching (38 to 62 days).

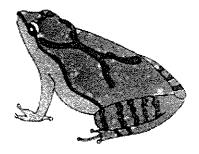
Tiger salamander—(7 to 9 inches). Found in the Southern half of the state, except for the Driftless Area (southwest corner). The color of the tiger salamander is variable, usually dark brown, olive gray or black, with many yellow, olive or tan spots, streaks and blotches on the head, back, sides and tail. The belly may be brownish, yellowish or gray. Preferred habitats include prairie ponds, marshes, kettle potholes, lakes, woodland ponds, and farm ponds. Tiger salamanders breed in deeper water. The young do not transform until late summer. These animals may live 20-plus years, and are philopatric.

Woodland frogs



Wood frog (1.4 to 3.25 inches). Statewide distribution. Wood frogs vary from brown, reddish-brown or tan in color, with a dark "mask" behind each eye. A white line runs along the upper lip. The belly is white,

sometimes with gray mottling. Males tend to be darker and smaller than females. Wood frogs are found in a variety of wooded habitats, from coniferous, floodplain and mixed hardwood forests to farm woodlots. This is the first frog to call each spring in Wisconsin, sometimes starting while there is still ice on the pond and snow on the ground. From a distance, a group of calling wood frogs can sound like quacking ducks.



Spring peeper (.75 to 1.5 inches). Statewide distribution. Spring peepers are very small treefrogs having adhesive pads on their toes. The body is brown or tan with an X-shaped mark on its back, but the mark may be incomplete or broken. The belly is white or cream colored. Spring peepers are found in a variety of woodlands, but are most abundant in moist woodlands. In late March or April, you will start to hear the male's breeding call, a high-pitched "peep." A chorus sounds like sleigh bells jingling. Spring peepers are rarely seen after breeding season.



Photo by Gina Hirsch

American toad (2 to 4.4 inches). American toads are short and stocky with dry, warty skin and short hind legs. The distinguishing characteristics of this animal are the two large kidney-shaped paratoid

glands found on the back of its head. These glands can emit a toxic secretion that protects toads from potential predators. The toad varies in color greatly: gray, brown, reddish brown, tan or olive. Usually there are dark spots on the back, and there is often dark spotting on its whitish or yellowish throat and belly. Toads are habitat generalists, and are even found in urban areas, but typically inhabit open woodlands and wooded edges. Toads start breeding in Wisconsin in May. Any pool of water will serve as a breeding site. The call of the male is a long high-pitched trill lasting up to 30 seconds. In late June or early July, newly metamorphosed toads can be seen by the hundreds around the edges of the breeding ponds.



Photo by Craig Brabant

Gray treefrogs (1.25 to 2.4 inches). Statewide distribution. There are two species of gray treefrogs in Wisconsin, the Cope's and the Eastern. It is virtually impossible to tell these two animals apart in appearance. Instead, they can be distinguished by call. The Eastern gray treefrog has a slow, melodic trill while the Cope's gray treefrog has a call that is faster and harsher. Gray treefrogs have moist, warty skin and large adhesive toepads. They can be gray, green, or brown, and can change between various shades of these colors. Usually there are dark blotches on the back and legs, and a white spot beneath each eye. The belly is white, and the underside of the hind legs and groin is a golden yellow. Damp woods and wooded swamps are favored habitats. Gray treefrogs start breeding in May in woodland pools, swamps, marshes and along the shallow margins of lakes. After breeding season, adults forage in shrubs and trees 18 to 30 feet off the ground. Newly transformed gray treefrogs are

usually green and tend to stay near their ponds during the first summer.

Frogs can use very small ponds, sometimes toads will use "ponds" as small as wheel ruts on logging roads through the woods.

To identify the eggs, larvae or adults of these species, the following resources are recommended:

Conant, R. and J.T. Collins. 1998. A field guide to reptiles and amphibians; eastern and central North America. Houghton Mifflin Company, Boston, MA, USA.

Harding, J.H. and J.A. Holman. 1992. *Michigan frogs, toads and salamanders: a field guide and pocket reference.* Cooperative Extension Service, Michigan State University, East Lansing, MI, USA.

Watermolen, D.J. 1995. A key to the eggs of Wisconsin's amphibians. Wisconsin Department of Natural Resources Research Report #165, Wisconsin Department of Natural Resources, Madison, WI, USA.

Waermolen, D.J., and H. Gilbertson. 1996. Keys for the identification of Wisconsin's larval amphibians. Wisconsin Endangered Resources Report #109, Wisconsin Department of Natural Resources, Madison, WI, USA.

Other resources:

- Wisconsin Frogs Tape—Send \$7 (includes postage and handling) to Madison Audubon Society, 222 S. Hamilton Street, Suite 1, Madison, WI 53703. Along with the tape you will receive the brochure Wisconsin Frogs and Toads.
- Snakes of Wisconsin by Rebecca Christoffel, Bob Hay and Lisa Ramirez, Publication ER-100 00, \$3, from Department of Natural Resources, Bureau of Endangered Resources, P.O. Box 7921, Madison, WI 53707.
- Amphibians of Wisconsin by Bob Hay, Publication ER-105-01, \$4, from Department of Natural Resources, Bureau of Endangered Resources, P.O. Box 7921, Madison, WI 53707.
- Wisconsin's Amphibian and Reptile Regulations, Publication ER-102 00(REV), Department of Natural Resources, Bureau of Endangered Resources, P.O. Box 7921, Madison, WI 53707

Rebecca Christoffel is the Wildlife Ecology wildlife outreach specialist for the UW Cooperative Extension Service in Madison. Illustrations by Rebecca Christoffel.

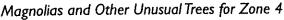
WWOA Board highlights-

Members asked to help secure more DNR foresters

he WWOA Board of Directors met March 8, 2001 in Wausau. Highlights from the meeting include:

- · The Executive Committee is currently updating the WWOA Employee Handbook and reviewing WWOA's independent contracts.
- President Virgil Kopitske attended the first annual meeting of the Phoenix Falls Chapter and was impressed with the attendance of 42 members. He felt the chapter was off to a great start. The WWOA Board approved the Phoenix Falls Chapter bylaws as submitted.
- A WWOA Nominations Committee was appointed by the President to recruit WWOA members for this year's election. Appointed to the Nominations Committee are Marvin Meier, Dale Lightfuss, and Nancy Livingston. Board members with expiring terms on

- the board include: Virgil Kopitske, Beverly Schendel, Roger Perrault, and Eugene Roark.
- · The first class of the Wisconsin Woodland Leaders Institute was selected with the help of President Virgil Kopitske and Nancy Bozek. We are happy to report that WWOA members comprise the majority of the class.
- Professor Mark Rickenbach, UW-Madison & UW-Extension, made a presentation to the board regarding his grant proposal that would look at the possibility of landscape scale land management with private landowners. Board members raised some concerns but the board agreed to support the grant proposal with the understanding that this would be a voluntary effort on the part of landowners and that any efforts resulting from this study would also be non-regulatory.
- The board agreed to support a new initiative by the wildlife and bird communities of this state called the Wisconsin Bird Conservation Initiative. This initiative will inventory Wisconsin's bird communities and species, look for ways to pool efforts for better management, and research reasons for decline of some species. Board member Gene Roark will continue to represent WWOA in this initiative.
- Rachel Jordan was appointed to represent WWOA at the National Network of Private Forest Landowners meeting in New Hampshire. This is a new group that is organizing.
- The board donated \$300 to the National Walnut Council Meeting to be held in LaCrosse this summer (see page 14 or www.wisconsinwoodlands.org for more details).
- The 2001 Annual Meeting Silent Auction funds will be designated to purchase a new computer for the office. The current computer is six years old. Any remaining funds will be used for a membership drive.
- The Treasurer's report noted that \$8,000 was transferred from WWOA's investments to the checkbook to pay December bills.
- The DNR report noted that the Governor's budget only included 8 of the 23 private forestry positions requested by DNR, the Governor's Council on Forestry, WWOA and others. It is now up to WWOA and individual WWOA members to get the word out to our legislators (800-362-9472) how important these positions are. The WWOA office sent a letter to all members of the Joint Finance Committee and will continue to stay up-to-date on this issue, but WWOA members need to help this effort.
- The WWOA Marketing Committee is updating the Sample Timber Sale Contract. The board hopes that the revised document will be ready by the end of the year for members to use.
- The WWOA Board approved a 9 percent increase in advertising rates for Woodland Management starting July 1, 2001. Ad rates have not been raised for two years and expenses have increased 9 percent.





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Forest tent caterpillars return

by Kyoko Scanlon

Forest tent caterpillars are again expected to munch on aspen and oak leaves throughout Northern Wisconsin, especially in Vilas, Oneida, and Lincoln Counties this spring. While the pest already showed up in April, trees in downtown and residential areas and forests suffered heavy defoliation last year. The outbreak appears ready to peak with widespread defoliation predicted across much of Northern Wisconsin, Minnesota, and Michigan. Forest tent caterpillars are native to Wisconsin. Their populations periodically irrupt and cause heavy defoliation on some types of hardwood trees. Outbreaks begin every 6 to 16 years and usually continue for 2 to 5 years.

The insect eats leaves of many broadleaved trees and shrubs, most commonly aspen, oak, and birch in forests, and marshal seedless ash and flowering crab in town. A full-grown caterpillar is 2 to 2.5 inches in length, its back is black with conspicuous footprint-shaped white spots, and the sides are blue with narrow orange stripes.

Despite its name, a forest tent caterpillar does not form a tent. Some people call them armyworms because when they migrate on the ground to find more food they look like marching soldiers. The adult is a light-brown moth. The eggs began to hatch by the end of April this year. Young caterpillars will first defoliate the tree where they hatched, and then migrate in search of more food. They will continue feeding for 5 to 6 weeks. Feeding usually peaks in late May to early June, and caterpillars start spinning a cocoon by mid-June. Adult moths emerge from cocoons by late June to early July to mate and lay eggs. All the defoliation is caused by caterpillars. The adult moths do not eat leaves.

Outbreaks eventually collapse from starvation plus increased parasitism, predation and disease. An important natural enemy called the "friendly fly," is one of the main contributors to the collapse of outbreaks. The adult fly parasitizes the pupal

stage. Adult flies become very numerous during the last few years of the outbreaks. Most broad-leaf trees can withstand several years of heavy tent caterpillar defoliation. Heavily defoliated trees often compensate by producing a second crop of foliage. Trees in poor health or under drought stress may decline and die after repeated severe leaf loss. Defoliation will sometimes cause stress in otherwise healthy trees, which may attract secondary pests.

In a yard, a sticky or slippery barrier band that is placed around the trunk of the tree can be effective to prevent migrating caterpillars from crawling up to the foliage. A bacterial insecticide, Btk (Bacillus thuringiensis var. kurstaki) can be sprayed on trees to kill young caterpillars. Individual caterpillars can also be sprayed with soapy water, or hand picked and soaked in soapy water to kill them. Brochures about forest tent caterpillars are available from DNR Service Centers.

Kyoko Scanlon is a DNR forest pest specialist in the Northern Region located in Rhinelander.

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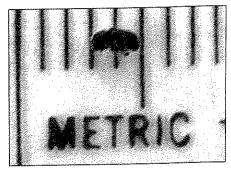
Evenings: Brian Nelson 608-326-8561

Bark beetle infects black cherry

by Dave Hall

The tiny, peach bark beetle *Phloeotribus* liminaris attacked mature black cherry late last summer in Columbia County after emerging from logging slash from a September, 1999 harvest. Many large-diameter tops produced ideal host material for the beetle population to build up. The late summer attacks on the residual cherry produced many conspicuous globules of gummy pitch. Dissection revealed large numbers of adult beetles that had bored into the live bark but did not reach the cambium. It is too early to know if they will successfully attack this year.

A second infestation was found in a nearby woodlot where a single black cherry was attacked after a windstorm had broken the tops off several large-diameter black cherry trees.



An adult peach bark beetle

The peach bark beetle is native to Wisconsin. It is a pest of peach orchards in the Southeastern United States. The adult is about 1 1/2 to 2 millimeters long. It occasionally attacks black cherry that is under stress. It has not previously been reported as a pest of black cherry in Wisconsin and it is unknown if this incident represents the beginning of a new pest problem. Utilization of the logging slash as much as possible would be a wise practice until we learn more about this bark beetle.

A pest alert is available on the DNR Forest Health Protection web page at: http://www.dnr.state.wi.us/org/land/forestry/fh/insects/index.htm

Dave Hall is a DNR forest pest specialist in the South Central Region located in Fitchburg. He is a charter WWOA member.

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by Jerry Lapidakis

Volunteers get it done

Volunteers were busy this spring and summer working on various projects at the Seno Woodland Education Center. In April, volunteers, with the guidance of WWOA member Ron Martin from Midwest Prairies, burned the four acres of prairie and savanna to stimulate native grasses. Volunteers also released future crop trees on five acres and cut and sprayed seven acres of honeysuckle that is invading the woods.

Volunteers were a big help in setting up and staffing the Native Plant Sale in April and helping with all the Family Day programs and Arbor Day.

A special thank you to all who helped with their time and talents. We cannot do it without you.

Barn work progressing-slowly

Phase I of the work to renovate the barn moved at a snail's pace through the winter and spring. We came up against numerous delays in getting plans approved by the state and obtaining all the necessary state, county and local permits. As a result, delays and expenses have been more than budgeted.

Phase I work includes a lot of costly and necessary improvements that no one sees, such as the septic system, water and electric service. The first basic improvements in the lower level of the barn will make it useable. These include siding and insulating the building, constructing a bathroom, food service area and meeting room. We will do as much as funding allows.

Plans for the public restrooms upstairs and improvements for meeting and exhibit space are on hold until we can obtain the needed funding.

Scouts to build pier

Eagle Scout candidate Eric Richter is coordinating construction of a pier and related improvements at the Seno pond. Students will use the pier to better access the pond for water studies. As the project for his Eagle badge, Eric must plan and carry out the total project including planning, design, funding, labor and construction. Besides the pier, Eric will complete terracing and erosion control measures on the slope down to the pond. This is an ambitious project that will increase the safe use of the pond.

Fall wish list

The following are needed items, in case any members have extras they would like to donate or provide a donation for a specific item:

New or used file cabinets

Hand tools (loppers, pruning saws, backpack sprayer)

Water test kits

Butterfly/insect nets

Underwrite the cost of school programs Donations to the Barn Renovation Fund

Golf cart or 4-wheeler

Check our web site for current activities and opportunities: senocenter@senocenter.org

WANTED— More Friends of Seno Center

To be successful the Seno Center needs the support of WWOA members statewide. We need friends to volunteer their time with activities at Seno. But we also need friends to support us financially.

The WWOA Foundation relies heavily on donations to support educational programs and develop needed facilities. Your support as a member of the Friends of Seno Center will help promote and sustain our mission of forestry education and research.

Members receive:

- · The Seno Center News
- · Unlimited use of trails

The Seno Woodland Education Center is a project of the WWOA Foundation, Inc. This 130-acre forestry-learning center is located in Walworth and Kenosha Counties in Southeast Wisconsin. The Seno Center is dedicated to forestry education and research.

- Special fees for most programs
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For an application to become a member of the Friends of Seno Center, call (877) 719-7774.

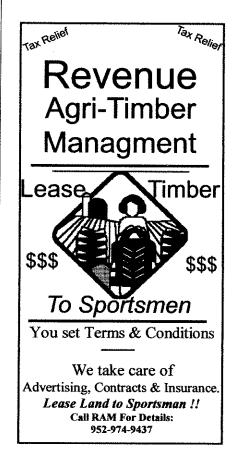
Jerry Lapidakis is WWOA's coordinator of the Seno Woodland Education Center. He is a member of the WWOA Publications Committee and prior to retirement was the private forestry specialist for the DNR Bureau of Forestry.

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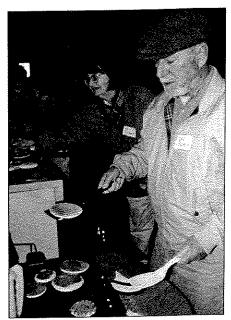
Chapter News

Bad Axe Chapter

When the days get so warm, a bit more than the norm, that you think it is time to go sunning; but the eventide chill says it's wintertime still, 'tis then that the sap begins running.

-Don Kramer

The month was March. The day was cold, with a biting wind. So what were all those people doing out in the woods of Sauk County? Ah, 'twas the first field day of 2001 for the Bad Axe Chapter, and 82 members (a few more counting dogs and kids) were there. The attraction? First, a timber stand improvement demonstration by DNR Sauk County Forester, Rick Livingston, and LaCrosse County Forester Greg Edge. This was out in the woods, knee deep in snow.



Participants enjoyed pancakes and maple syrup while Bad Axe members cooked pancakes. Tim Eisele photo

Second, a maple sugaring demonstration by the hosts, the owners of this 220-acre spread, Gordon and Carol Janney. The Janney's were named Wisconsin's Maple Syrup Producers of the Year for 1996. The reward was a pancake and sausage breakfast, with hot coffee, orange juice, and limitless maple syrup. In the barn, gathered around a hot stove, members talked and ate for two more hours. Local TV and newspaper reporters covered the event and gave the Janneys

(and WWOA) some nice publicity. It was a good day for the chapter.

The next meeting, May 19, included a look at the thousands of seedlings at the Wilson Nursery in Boscobel.

The chapter's annual chicken and sweet corn picnic will be Aug. 4, followed by a seminar on sawmill operations at Webster Industries in September. The chapter, now with 205 Tree Farms enrolled, will close out the year with the annual meeting at Viroqua Nov. 10.

by Dan Bohlin, field day chairman, and Don Kramer, president

NEWFO Chapter

The annual meeting of the chapter was held at the Cedar Ridge Supper Club on Feb. 22. Scott Fischer, DNR forester in Manitowoc County, presented Tree Farm signs to the newest Tree Farm members. He announced that Paul and Delores Novachek were the new Tree Farmers of the Year, and he reviewed their land management practices. Chuck Wagner, chapter president, gave a presentation on WWOA, since many non-members were there to attend the ceremony honoring the Novacheks.

Wagner announced that it was time for him to step down, and if new volunteers don't step forward, the chapter will cease to exist. Any interested members should contact Wagner at (920) 837-7712 in order to keep the chapter operating.

by Tom Kempen, secretary



The Novachek's receive their Tree Farm plaque.

Phoenix Falls Chapter

The chapter's second field day was met by cold winds and rain. This field day, centering on "How to grade and saw your logs," attracted 30 members. Curiosity was high over how a log with a 45° angle could be sawn into anything useful. Imaginations were working overtime as the slabs of red maple came off the sawmill.

The chapter, along with the Wisconsin DNR and University Extension, will sponsor a Gypsy Moth/Oak Wilt conference July 7, at Crivitz High School starting with registration at 8 a.m. Contact Donna Johnston at (920) 846-2026 for information.

The chapter is planning a picnic social in the Crivitz area to help members get better acquainted.

The fall field day, about fire safety for woodland owners, will be September 15. by Donna Johnston, chapter president

North Central Chapter

The chapter held its first Annual Central Wisconsin Woodland Owners Conference—The Law of the Land—on February 10 in Wausau. The conference was co-sponsored by WWOA, UW-Extension, DNR and The Woodland School. Topics included presentations and discussions on boundary disputes, adverse possession/ condemnation, access issues, trespass laws, recreation liability, land trusts/conservation easements and estate planning. All sponsors were pleased with the attendance of 164 forest landowners, 16 exhibitors and the 7 speakers.

The Second Annual Central Wisconsin Woodland Owners Conference will be held Feb. 9, 2002.

Up-coming events for the Chapter includes a June 16th field day at the Randy Blomberg woodland near Ogema. Anyone interested in attending should contact John Czerwonka at (715) 454-6440.

by John Czerwonka, chapter president

Chippewa Valley Chapter

The chapter held a spring field day May 12 at the charming Stout Island on Red Cedar Lake. Members are also invited to join members of the West Central Chapter on a bus trip to the Menomonie Indian Reservation near Keshena on June 22. The chapter's annual Log Jam Picnic will be July 28.

Central Sands Chapter

The chapter's annual meeting was held April 17 at Carlson's Rustic Ridge in Adams. Jon Steinhaus, retired general manager of Adams-Columbia Electric Coop and a board member of Waterkeepers of Wisconsin, discussed Perrier and legislation to protect Wisconsin's water resources.



For children and grandchildren of WWOA members

by Tim Eisele

Ordinarily there would be no way that I would encourage youngsters to stay inside on a weekend morning and watch television. It's far better to be outdoors enjoying outdoor sports or just taking a walk in the woods.

But, earlier this year a new TV program began that, assuming a kid is going to be getting his or her weekly Saturday morning dose of cartoons anyway, is definitely worth watching.

Produced by the Department of Natural Resources (DNR) and Discover Wisconsin Productions, of St. Germain, Into the Outdoors features outdoor adventures that youngsters can find in their backyard and throughout the state.

The weekly series features two kids (Annie and Henry) who take kids of all ages on outdoor adventures on lakes, in forests, prairies, streams, cities, state parks, and many other locations. The show uses television and computers to connect with kids in a fun and educational manner.

On the show, Annie from Milwaukee, communicates regularly via computer with Henry in Eau Claire. In each episode, Annie, Henry and other kids communicate about what's going on in Wisconsin's outdoors.

Jim Vaughn, producer/director of the show, said that the concept for the show began with the late Dick Rose, professional fishing guide from Vilas County, who wanted to produce a television show that would interest kids in getting outdoors and becoming stewards of nature rather than just sitting indoors.

"Our goal is to help to get kids outdoors and have them learn from nature," Vaughn said. "We want them to realize that Wisconsin has so much to offer, and encourage them to try new outdoor activities."

The program worked with a child psychologist and conducted focus group surveys on test segments and learned what kids found exciting and what they found boring. The end result is that the

program is lively, has graphics, computer visuals, and professional actors that are interesting and cover a wide variety of outdoor topics.

The series runs for 13 weeks, and then will be repeated quarterly with new episodes beginning in the winter of 2002. For viewers who missed the first shows, the same episodes will begin their second showings in July.

The 30-minute show normally includes at least three major features, with short connections in-between, and an ending segment featuring information on a different profession within natural resources as a potential career.

The first episode featured kids helping track, timber wolves from an airplane, locating black bears with a DNR biologist for a wildlife-monitoring project, trekking on snowshoes at Interstate State Park, and learning about water quality beneath river ice.

Another episode showed kids learning about brownfields in urban areas, recreational trails that have been built on reclaimed land, forestry basics including crop tree release and forest roads, control of exotic plants such as garlic mustard, and basic paper making.

Some of the forestry topics included in the show this year are: "Skills and Thrills" (making maple syrup), airing July 14 & 15 and Oct. 13 & 14; "Planting Ideas" (harvesting timber in Viroqua area), airing: Aug. 4 & 5 and Nov. 3 & 4; "It's a Bug's World" (including a segment on gypsy moths), airing Aug. 18 & 19 and Nov. 17 & 18; "Trees are Tree-mendous" (What 'wood' we do without trees? Let's 'branch' out and see ...), airing June 16 & 17, Sept. 15 & 16, and Dec. 22 & 23.

Youngsters and teachers can use the web sites: www.dnr.state.wi.us/eek/ or www.intotheoutdoors.org for additional information supporting the segments each week.

Tim Eisele is the editor of Woodland Management. He owns land in Crawford County.

Into the Outdoors can be seen on:

WISN-TV 12 Milwaukee Saturday, 6:30 a.m. WKOW-TV 27 Madison Saturday, 10 a.m. WAOW TV 9 Wausau Sunday, 9 a.m. WYOW TV 34 Eagle River Sunday 9 a.m. WQOW TV 18 Eau Claire Sunday 9 a.m. WXOW TV 19 LaCrosse Sunday 7 a.m. WISN TV 26 Green Bay Sunday 7:30 a.m. WDIO TV 10 Duluth Sunday 7 a.m. WIRT TV 13 Hibbing Sunday 7 a.m.



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Jim Czerwonka, Chetek Morteza Dini, Highland Park, IL

Bill Dunnigan, St. Paul, MN Donald Falk, Green Bay Karl Fee, Stevens Point

Scott Fischer, Mishicot Mary Ford, Chicago, IL Kenneth Graap, Merrill

Richard & Cleo Hendricksen, Hancock Ho-Chunk Nation-Forestry, Black River Falls

Gary Kasprzak, Slinger Daniel & Yvonne Immel, Cleveland Jeff Keuntjes, Wisconsin Rapids Roland Krause, Luxemberg Ron Krohn, Pittsville

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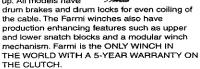
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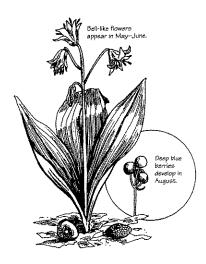
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Native Corner



Blue-bead lily

by John Bates illustration by April Lehman

bout two feet tall, the leafless flower Astalk carries three to six nodding, bell-like blossoms, rising from three large leaves. The soft yellow-green color of the flowers resembles young corn, giving rise to another common name: corn lily. Each leaf is long (up to 10 inches), glossy spotless green, and narrowly oval with all the veins flowing in an arc to the blunt leaf tip. Deep blue beadlike fruits project from a single upright stalk in August, providing an easy reminder of the common name.

The species name borealis trumpets that this is a plant of the North Country. Blue-bead lily blooms from May to June, commonly in untrammeled, shady, moist woods and acid soils. A creeping horizontal rhizome tends to produce dense colonies of blue-bead lilies much to the delight of any hiker.

DeWitt Clinton, the young governor of New York in the 1830's, and a naturalist and author, was the source of the genus name Clintonia. While most politicians have buildings, roads, and ballparks named after them, Clinton received a far kinder accolade when this subtle flower was named for him. Thoreau bemoaned this unholy alliance, writing that politicians were not worthy of such tribute, but the name stood. To make matters worse for the pure of heart, Clintonia is often used as the common name as well.

Chipmunks eat the deep blue berries, and undoubtedly other animals do also, because the stalks are often stripped by mid-August. However, the bitter berries are considered poisonous to humans. The strikingly beautiful berries should be left to aesthetic, not culinary, tastes.

The Ojibwa used the fresh leaves to treat burns. One botanical source writes that the Ojibwa believed that dogs ate the roots to poison their teeth and thus to kill their prey more quickly.

John Bates is an outdoorsman and naturalist who resides in Manitowish. His writings on wildflowers are reprinted from his Trailside Botany-101 Favorite Trees, Shrubs & Wildflowers of the Upper Midwest. Copies are available for \$12.95 from Pfeifer-Hamilton Publishers at (800) 247-6789. Bates can be reached at: manitowish@centurytel.net



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continued from page 5

Old growth

More than any other, the old growth issue symbolizes the conflict and controversy that crippled the Forest Service for 30 years or more. Former Chief Dale Robertson called for the inventory and mapping of old growth forests more than a decade ago. It is time we completed those inventories and maps.

Moreover, it makes little sense to harvest old growth forests simply to bring their short-term economic values to market. The greatest good of these remnant forests is found through their research and study, conservation and restoration. The mark of a truly wealthy nation is not measured in acres harvested, rivers dammed, oil barrels filled, or mountain-tops mined. Our maturity is most ably displayed by demonstrating mastery over ourselves. Our willingness to say, "Enough, these ancient forests cannot be improved through commodity timber production" honors our nation far more than engineering an expensive road to harvest an old growth stand. Timber harvest remains an important function of the National Forest System. For example, thinning of brush and small diameter trees may help protect communities and restore fire dependent ecosystems, and in the process employ thousands of people in high quality jobs. But not if timber harvest comes at the expense of our rarest and most biologically significant old growth forests. Ensuring the conservation of old growth forests should become among the highest Forest Service priorities.

Timber trust funds

The incentive system that drives many Forest Service activities, despite the best intentions of field employees, continues to be modeled on an outdated system from a bygone era. The Forest Service helped to prompt congressional reform of a 1908 law that separates funding for rural schools and roads from timber harvest levels. If implemented as passed, this legislation can help to diminish controversy and reconnect communities to the lands and waters that sustain them.

Congress should now turn its attention to reforming the financial incentive system that promotes roadless area development and old growth harvest. The fact that timber receipts are used to pay employees and finance important programs too often pits long-term land health objectives against short-term financial considerations.

For the past two years, the Forest Service proposed that Congress make nearly \$400 million of Forest Service timber related trust funds (e.g., Knutson-Vandenberg, Salvage, and Brush Disposal funds) subject to public scrutiny and congressional review through the annual appropriations process. Given the increases in our

budgets over the past few years, it is past time that all Forest Service programs are treated on an equal par.

Wilderness

Few congressional decisions are more forward-looking than those involving wilderness designation. We must highlight the profile of, and increase the funding for, the dwindling number of wilderness employees in the field. This helps to explain why I committed to hiring a hundred new wilderness field staff and created a separate wilderness program apart from Recreation, where Wilderness formerly resided. It is far more than a recreation resource. Wilderness is a salve to the human spirit. In an increasingly developed and urbanized society it is a tangible reminder of our pioneer heritage.

As an agency, we have always had a schizophrenic relationship with wilderness. Although the Forest Service practically invented the wilderness ethic, we struggle with recommending new wilderness designations from the most biologically productive lands. Existing wilderness areas remain under threat today-from proposed mining operations under the Cabinet Mountains Wilderness of Montana to chronic under-funding. Remaining vigilant against these threats and recommending the expansion of wilderness from remote high elevation areas to old growth forests, prairie grasslands, and bottomland hardwoods would demonstrate your commitment to this enduring resource.

Fire management

Six years ago, in the wake of a deadly fire season, Congress passed, and the President signed, the Salvage Rider. The Salvage Rider applied short-term solutions to the long-term degradation of forest ecosystem health through past management actions and fire suppression. I became Chief on the heels of this 18-month law that suspended citizen appeals and directed agency resources into timber harvest of burned and associated green trees, and inherited the rancor and gridlock it wrought.

By contrast, in the aftermath of last summer's similarly intense fire season, we crafted a bipartisan approach to protecting communities and restoring fire dependent ecosystems not dependent on the use of traditional commercial timber sales. Our long-term solution directs protective work on the areas directly adjacent to communities most at risk, through thinning of brush and other fuels that are most flammable, and broader use of prescribed fire. Thousands of jobs and economic opportunities await those communities willing to perform the needed stewardship work and to use the wood fiber generated incidental to accomplishing restoration objectives. The effort will meet controversy and gridlock, however, if used to simply accelerate commercial timber harvest in the name of fire protection.

The 1872 Mining Law

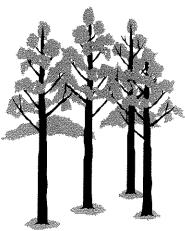
The General Mining Act of 1872 is the product of an era when women and many minorities could not vote, the nation was



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struggling through Civil War reconstruction, and St. Louis represented the western frontier to many citizens. The 1872 Mining Law confounds Forest Service efforts to balance multiple uses. Problems with the Law's antiquated royalty provisions are well known. In addition, the Law allows privatization of public lands for as little as \$2.50 to \$5 per acre. Every single use of the National Forest System: recreation, timber harvest, oil and gas development, for example, is subject to the approval or rejection of a field official for environmental or safety reasons. All but one, that is-hard rock mining.

It is Congress, not the Forest Service that must act to bring this law into a modern context. Because they have not, I recommended the segregation and withdrawal from development under the 1872 Mining Law of the Rocky Mountain Front, the Guadalupe Caves in New Mexico, portions of the biologically rich Siskiyou National Forest of Oregon, and other areas of the National Forest System. I had little choice in the matter because the anachronistic law vests anyone capable of filing a valid claim with the right to develop an area regardless of its other social or environmental values. Until Congress demonstrates the willingness to reform the outdated 1872 Mining Law, I urge you to continue to aggressively recommend the segregation and withdrawal of our most sensitive forests and grasslands from hard rock mining.

Off highway vehicles

More people recreate on National Forests and Grasslands than on any other public lands. Technological innovations in motorized recreation enable people to get into more remote areas than ever before, often resulting in degraded water quality and wildlife habitat and erosion. Off highway vehicles should remain a legitimate use of public lands where expressly allowed. We must ensure, however, that their use does not compromise the integrity of the soil and water resource and wildlife habitats.

Last year, more than 100 groups petitioned me to initiate national rulemaking regarding off highway vehicles. I resisted in part due to other priorities. This issue, however, will not get any easier for local managers. I urge to you to ratify and implement policies that I articulated last year for the use of off road vehicles on the National Forest System. They include: all off road vehicle decisions, including those that change present levels of use, should be made through an open and public process, except where emergency closure is needed to protect public safety or forest resources; motorized use should occur only on designated routes and areas; development and use of unauthorized roads and trails should be illegal. This will require adequate signing and mapping for responsible off road vehicle users. If such recommendations are not implemented, the litigation and controversy that greatly reduced the timber program, will almost certainly soon haunt the Recreation Program.

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Private land conservation

Fewer areas offer more promise for conservation and watershed restoration than private lands. Decisions by the nation's largest wood retailers to not purchase wood from endangered forests and to only sell appropriately certified wood products speak to the promise and momentum of this issue. The Forest Service State and Private and Research programs offer urban and rural residents alike voluntary options for improving management, conservation, and restoration of private lands. These programs are chronically under-funded yet entirely consistent with this Administration's stated intent to offer incentives to private land conservation, and should be a priority for the Department of Agriculture.

Water

Recent international studies indicate that by 2025, two-thirds of the world's people will face water shortages. As Chief, it was my policy that watershed health and restoration serve as the overriding priority of all forest plan revisions. Fewer States demonstrate the importance of the National Forest System to drinking water than your home state, California. Although National Forests comprise only 20 percent of the State's land base, they supply

nearly 50 percent of the surface runoff. Ensuring the multiple benefits of the National Forests water resource will require, among other things, a willingness to assert water rights to preserve wilderness values, providing minimum instream flows for fish, and securing bypass flows for other resources.

I recognize that short-term political imperatives run rampant in Washington, D.C. Please remember that the decisions you make through your tenure will have implications that last many generations. You cannot fail if you allow your loyalty to the land and to those yet to be born to take precedence over all other organizational and political realties.

I wish you much success as Secretary of Agriculture, and hope that you receive these recommendations in the constructive manner they are intended. With clear conservation policy direction, and without micro-management from political forces, the Forest Service is the world's finest conservation organization. Allow Forest Service employees to follow their land ethic and they will provide for "the greatest good of the greatest number in the long run."

Sincerely, Michael P. Dombeck Chief of the Forest Service

WWOA Video Library

The following video programs are available to rent from the Wisconsin Woodland Owners Association. Please note the rental fee is per tape plus the cost of the return postage. Send your check payable to **WWOA**, **P.O. Box 285**, **Stevens Point**, **WI 54481**. The tapes will be sent as soon as they are returned from the previous viewers. Tapes should be returned within a week from the date of receipt so that others may use them. Individuals who are not WWOA members are required to pay a refundable deposit of \$25 per tape. A separate check for the \$25 is helpful in speeding up the return of the deposit to the borrower. For more details call the WWOA office at (715) 346-4798.

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- 1-3 The Sun and Your Trees-9:33 Some trees grow better in full sunlight while others prefer shade. These needs, together with harvesting methods, are reviewed for various species.
- 1-4 Growing Hybrid Aspen and Larch-12:55 Covers site requirements, establishment methods, insect and pest problems as well as wildlife values.
- 1-5 Red Pine Management-9:49 Growing of red pine, when and how to thin, pruning and sawtimber production is covered.
- **1-6 Woodland Protection-**8:30 Diseases, insects, fire, grazing and weather are some of the problems discussed.
- **1-7 Growing Hardwood Sawtimber and Veneer-**8:43 Management objectives of different tree species grown for sawtimber and veneer are discussed.
- **1-8 Woodlot Management for Wildlife**-13:00 Creating wildlife openings, use of different harvest systems and planting food for wildlife are some management tools mentioned.

WOODLAND MANAGEMENT VIDEO TAPE NO. 2

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- **2-1 The Managed Forest Law-**10:00 Covers the various aspects of the law from enrollment through development of a management plan and withdrawal.
- **2-2** Wasteland to Woodland-22:25 A very complete history of Wisconsin woodlands from the clear-cut era to present.
- 2-3 Private Forest—Multiple Providers- 15:35 Examines why a managed forest is a better provider of fiber production, wildlife values and scenic beauty over an unmanaged woodlot.
- **2-4 Tree Identification**-19:40 This is an overview of Wisconsin forest grown trees dealing first with conifers then deciduous tree identification.
- **2-5 Timber Cutting for Home Use**-13:01 Many uses can be made of the timber in your woodlands. Various alternatives are discussed.

WOODLAND MANAGEMENT VIDEO TAPE NO. 3

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- 3-1 Maple Syrup—Something Special from WI-15:00 An overview of the maple syrup industry in Wisconsin from tapping to the finished product.
- **3-2 Tapping the Sugarbush—An American Tradition**-10:00 The tapping and gathering of sap in the making of maple syrup is examined in greater detail.
- **3-3 Maple Syrup—Boiling and Evaporation**-10:25 Starting after the sap reaches the open pan or evaporator the process is followed until pure maple syrup is produced.
- 3-4 Packaging and Marketing of Maple Products-10:00
 This program examines the standards which should be followed in bottling syrup and packaging other maple products for the retail market.

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Cultivating the forest and harvesting its valuable produce in the form of timber affects its indigenous inhabitants, plants and animals. This MoDo Skog film presents a Scandinavian picture of how to integrate natural characteristics into the cultivated forest. 18 minutes.

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In this PBS-style documentary, forest scientists, environmental activists, forest product workers, and politicians are interviewed to address the history, science, successes, and tragedies of the forestry debate in this country. 1 hour.

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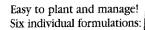
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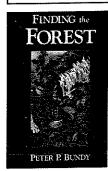
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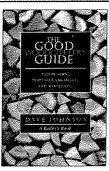
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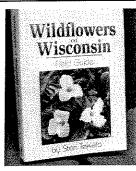
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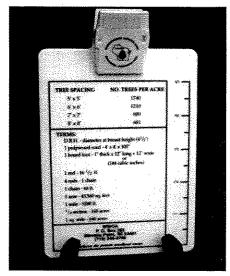






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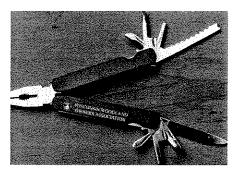
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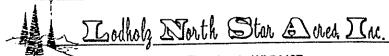


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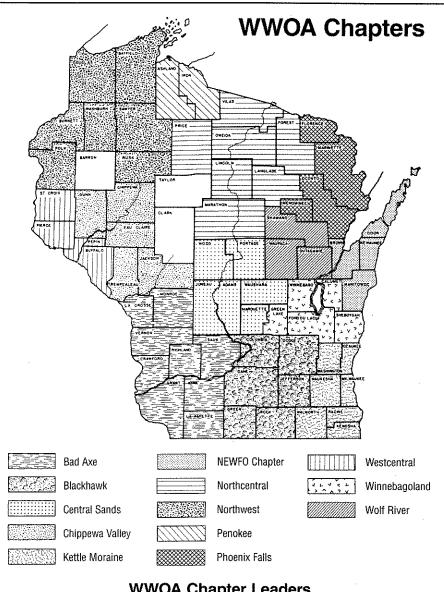
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boards, committees, and councils. WWOA also serves as a partner on numerous projects with many agencies and organizations. This participation gives you a voice in making policy and legislation affecting your woodlands.

- WWOA annually provides scholarships to students interested in forest stewardship.
- WWOA's Gift Shop is your source for books, publications and videos about forestry and woodland management.
- WWOA will provide you with a sample timber sale contract containing all the necessary legal clauses to protect your interests.
- New WWOA members receive a packet of informational brochures and publications. These items are a great resource guide and make a wonderful new addition to your woodland library.

WWOA's Purpose

The Wisconsin Woodland Owners Association, Inc. was established in 1979 as a 501 (c) 3 to advance the interests of woodland owners and the cause of forestry and to develop public appreciation for the value of Wisconsin woodlands and their importance in the economy and overall welfare of the state; to foster and to encourage the wise use and management of Wisconsin's woodlands for timber production, wildlife habitat and recreation.

- WWOA is dedicated to the education of those interested in the management and future of Wisconsin Woodlands.
- WWOA's mission is to ensure that future generations will be able to enjoy the beauty and utility of the woodlands.
- WWOA serves the membership in many and increasing ways.
- With a perspective on the future and a strong commitment to wise woodland management, WWOA has become the "Steward of Wisconsin Woodlands."



For Your Friends and Neighbors

Clip and send membership application to:

WWOA
Box 285
Stevens Point, WI 54481
www.wisconsinwoodlands.org

MEMBERSHIP	APPLICATION
☐ Yes, I want to join WWOA ☐ Rece ☐ Check enclosed payable to Wisconsin Voting Membership (owner of Wisconsin woodlands) ☐ Regular member \$35 ☐ Family (carries two votes) \$50 ☐ Contributing member \$60+ ☐ Individual Life Member \$350 (must be 18 years or older)	Nonvoting Membership (does not own Wisconsin woodlands) Associate member \$35 Associate contributing member \$60+ Student \$20
Name	
Address	
	State Zip
Phone (home)	(business)
Location of woodlands (county)	Number of acres
Primary interests in owning woodlands	
Referred by	
If you have questions, call (715) 346-4798	



Here's what WWOA members said when asked to share their experiences regarding the following questions.



Lowell Klessig

"The best help and advice I ever received on my woodland was...."

The best advice I received was the first advice. I had purchased an abandoned farm in Ashland County in 1970 and had started to plant it to red pine and white spruce. In 1973, Sigurd Olson (protector of the Boundary Water Canoe Area) and Chuck Stoddard (director of the U.S. Bureau of Land Management) stood on 'the perch,' the highest point with a 5,000 acre vista. They loved the view and then advised me to be cautious and patient as I planted more trees.

They advised me to feather them in along the irregular boundaries of the existing woods, then wait 5 or 10 years and plant again along the irregular boundaries of the earlier plantings. In this manner, the plantings will look like natural succession out from the mature woods.

They advised me to do no planting in front of the 'perch' because the little trees would grow up to obscure the view which was the reason for buying the farm.

Unfortunately the press of a far-away career prevented me from doing any more planting until recently. An invasion of tag

alder has convinced me that I should have followed the advice.

-Lowell Klessig, Amherst Junction



Jim and Ann Heerey

"I improved the success of tree planting when I..."

We purchased a five-foot rotary mower. It enables us to remove the competing weeds and grass, and maintain the trails. It is a woods heavy rotary mower and the five-foot size allows us to mow between the rows of trees. It also is a great site preparation tool.

—Jim and Ann Heerey, New Auburn



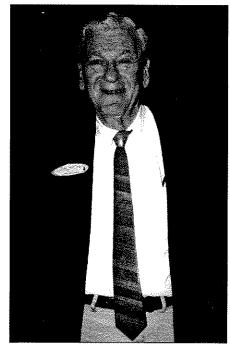
William and Lorraine Wilde

"What's one of the ways that you've been able to meet other woodland owners through WWOA?"

We had the pleasure of helping with setting-up and staffing the booth at the Wisconsin Valley Fair last August. Along with the WWOA display and brochures, we showed some unique wood pieces and leaf identification charts, and held a drawing for a one-year WWOA membership. Other WWOA members helped to take turns staffing the booth for four-hour shifts.

Thanks to the help of Marv Meier and John Czerwonka, we had a successful week at the fair. It was interesting talking to the people coming through and trying to answer their questions about woodlands and WWOA.

—William and Lorraine Wilde, Wausau



James Heller

"What's the most unique product made from wood that you've ever owned?"

This tie. It was given to me by my daughter in Connecticut, and I've worn it to several WWOA annual meetings.

-James Heller, Milwaukee



Don't miss this opportunity for new and veteran members to meet, learn, and see different woodlands:

WWOA
Annual Meeting
October 5-7
Wausau



Experienced Growers of Quality Seedlings, Transplants & Christmas Trees

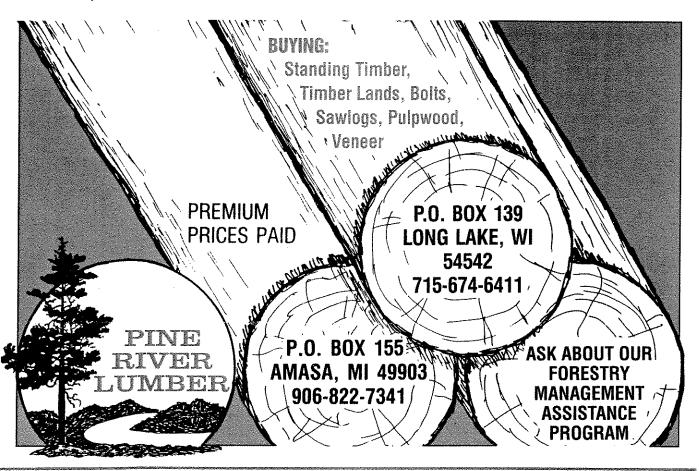
	PER	Per
	100	1000
FRENCH BLUE (FRENCH A 4-8" 2 YR. S	\$35.00	\$135.00
SCOTCH HIGHLAND (SPE 6-12" 2 YR. S	Y VALLEY)	\$150.00
TURKEY SCOTCH PINE 4-8" 2 YR. S		\$135.00
7-15" 2-1 T.P. SIDE-PRUNED	\$65.00	\$400.00
EAST ANGLIA SCOTCH I 6-12" 2 YR. S 7-15" 2-1 T.P.	\$40.00	\$150.00
SIDE-PRUNED	\$65.00	\$400.00
BELGIUM SCOTCH PINE 6-12" 2 YR. S9-14" 3 YR. S	 \$40.00	\$150.00 \$165.00
AUSTRIAN HILL SCOTCH	I PINE	
6-12" 2 YR. S	\$40.00	\$150.00
NORWAY PINE (PINUS RES 3-6" 2 YR. S. 6-12" 3 YR. S. 7-15" 2-2 T.P. JUMBO T.P. 15" & UP	SINOSA) "REC \$ 40.00 \$ 50.00 \$100.00	\$185.00 \$185.00 \$465.00
WHITE PINE (PINUS STROB 4-8" 2 YR. S	\$40.00 \$50.00 \$90.00	\$185.00 \$185.00 \$480.00
AUSTRIAN PINE (PINUS N 4-8" 2 YR. S 9-14" 3 YR. S 8-12" 2-2 T.P	ligra) \$40,00 \$50.00 \$90.00	\$150.00 \$180.00 \$495.00
NORWAY SPRUCE (PICE# 6-12" 2 YR. S 9-14" 3 YR. S 7-15" 2-2 T.P JUMBO T.P. 15" & UP	\$45.00 \$65.00 \$95.00	\$165.00 \$220.00 \$490.00
WHITE SPRUCE (PICEA GLAUCA LAKE STATES) 6-12" 2 YR. S	. \$45.00 . \$65.00 . \$95.00 . @\$2.00 &	\$165.00 \$220.00 \$490.00
MINIMUM ORDER OF ONE 50 or more S 25 or more Tra	E SIZE AND eedlings	VARIETY:
Special discounts are availal more of one size. Call or writ deposit of 25% with the orde pickup or prior to shipping de	ole for lots of e for a comp r. The balanc	

1 .	PER 100	Per 1000
BLACK HILL SPRUCE		
(PICEA GLAUCA DENSATA) 4-8" 2 YR. S	.\$ 90.00 .\$110.00	\$165.00 \$470.00 \$535.00
COLORADO BLUE SPRU		
(PICEA PUNGENS GLAUCA) 6-12" 2 YR. S	.\$ 45.00 .\$ 75.00 .\$ 90.00 \$145.00	\$165.00 \$225.00 \$490.00 \$775.00
DOUGLAS FIR	Company	
(PSEUDOTSUGA DOUGLASI LING 6-12" 2 YR. S	,§ 45.00	\$165.00 \$475.00
CONCOLOR FIR (ABIES C 6-12" 2 YR. S	.\$ 65.00	\$250,00 \$505.00
BALSAM FIR (ABIES BALSA		
3-5" 2 YR. S	, \$ 50.00 . \$ 55.00 . \$ 95.00 . \$105.00	\$195.00 \$265.00 \$525.00 \$595.00
FRASER FIR 3-5" 2 YR. S. 4-8" 3 YR. S. 6-12" 2-2 T.P. 12-16" 2-3 T.P. JUMBO T.P. 16" & UP	.\$ 65.00 .\$115.00 .\$135.00 .@\$2.00 E	\$200.00 \$275.00 \$545.00 \$615.00
DARK GREEN ARBORVI 4-8" 1-1 T.P.	TAE \$100.00	\$685.00
EASTERN ARBORVITAE 3-5" 2 YR. S	(WHITE CEC . \$ 55.00 . \$120.00 . \$150.00	\$260.00 \$260.00 \$495.00 \$575.00
GLOBE ARBORVITAE (V 4-8" 1-2 T.P. 6-12" 2-2 T.P.	VOODWARD) . \$100.00	\$700.00 \$900.00
PYRAMIDAL ARBORVITA 4-8" 1-1 T.P.	AΕ	\$685.00
THECHNY ARBORVITAE 4-8" 1-1 T.P. 12-16" 2-2 T.P.	. \$100.00	\$685.00 \$750.00

DECIDUOUS	TREE	S 81 S	
		PER 100	Per 1000
AMERICAN PLUM 12-18" S		\$90.00	\$525.00
BLACK CHERRY 12-18" S			
BLACK WALNUT 12-18" S		\$85.00	\$380.00
COMMON CHOKECH	ierry (Prunus \ \$95.00	√irginiana) \$620.00
COMMON LILAC 12-18" S			\$625.00
EUROPEAN MOUNTA 12-18" S 18-24" S	AIN ASH	ł	\$225.00 \$410.00
GREEN ASH 1 YR. S.			\$310.00
HIGHBUSH CRANBE	RRY (A	MERICAN)	
HONEYSUCKLE - TA 5-10" 1 YR. S	TARIAN	(LONICE	
HYBRID POPLAR 12-24" S.			
MIDWEST MANCHU 18-24" S.	RIAN CF	RAB	
NANKING CHERRY 12-18" S.			
RED OAK 6-12" S			
RED OSIER DOGWO	OOD		
RED SPLENDOR CF 18-24" S.	ΔB		
RUSSIAN OLIVE 5-10" 1 YR. S.			
SILKY DOGWOOD 5-10" 1 YR. S			
SILVER MAPLE 12-18" 1 YR. S			
WHITE ASH			
WHITE BIRCH			
12-24" 2 ya. S 18-24" 1-1 T.P		\$ 95.00	\$450.00
WHITE OAK 6-12" 1 YR. S			
HOMEOWNER'S L 5 COLORADO BL 5 WHITE SPRUC 5 WHITE PINE 6- 2 EUROPEAN MG 6 COMMON LILA 2 RED SPLENDO 25 TREES TOT	.UE SPI E 7-15" 12"T.P. DUNTAI C 12-18 PR CRAI	RUCE 6- T.P. N ASH " S. B 18-24"	12"T.P. 18-24" S. S.
WILDLIFE COMBC 5 EUROPEAN MC 5 AMERICAN PLI 10 SILKY DOGWC 10 NORWAY PINE 10 WHITE PINE 6- 10 RED OAK 6-12' 50 TREES TO'	DUNTA) JM 12-1 OOD 5-1 7-15"T 12"T.P. `S.	8" S. 0" S. (P.	
HOMEOWNER'S (5 SCOTCH PINE 5 WHITE PINE 6 WHITE SPRUC 5 BALSAM FIR 6 FRASER FIR 6 25 TREES — TO	7-15" 2- 12" T.P. E 7-15' -12" T.P. -12" T.P.	1TP. TP.	
PLANTING SUPPI 1/2 LB. ROOT GEL 1 LB. ROOT GEL 3 LB. ROOT GEL 1 LB. ROOT GEL OR 1000 TRANSF HAND PLANTING B 3" PLANTING SPI	WILL TF PLANTS ARS	EAT 300	\$12.00 EA \$32.00 EA 0 SEEDLINGS

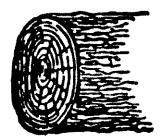
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